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ABSTRACT

The document presents six Strategy for Peace Conference reports prepared by 94 participants who are leaders in government and the professions throughout the United States. Opening remarks by C. Maxwell Stanley, conference chairman, evaluate accomplishments of the United States in 1977 with regard to foreign policy and provide a context for the reports which follow. The first report considers the U.S. and U.S.S.R. cooperation in space. The militarization of outer space, United States and Soviet interests, and the problem of the introduction of weapons into outer space are examined. The second report presents an evaluation of the U.S. Non Proliferation Policy, the Act of 1978, the U.S. Nuclear Fuel Cycle Policy, the International Fuel Cycle Evaluation (INFCE), institutional issues, and the prospects for international consensus. The third report considers the United States disarmament policy, specifically the SALT agreements and non-nuclear arms reduction. The topic of the fourth report is conversion of defense industries. Legislative approaches, the role of industry, and the future of conversion are discussed. The fifth topic, the reorganization of U.S. foreign aid, examines six options for reorganization. The final topic, energy and developing nations, considers the energy supply and demand, energy program objectives, and five approaches to deal with the energy dilemma. A list of participants is included. (KC)

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NINETEENTH

STRATEGY FOR PEACE

Conference Report
October 5-8
1978

Airlie House
Warrenton, Virginia

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PREFACE

III

The **Nineteenth Strategy for Peace Conference** continued The Stanley Foundation's series of annual meetings dedicated to a reevaluation of U.S. foreign policy. Ninety-four participants from a wide spectrum of disciplines convened to discuss six timely and important issues confronting the world community.

The first **Conference to Plan a Strategy for Peace** was held in June 1960, to involve leaders in government and the professions throughout the United States in a search for a more enlightened and forward looking foreign policy.

The format of this Conference has been an informal off-the-record exchange. No time has been spent in presenting or debating prepared papers or positions. No effort has been exerted to achieve consensus where difference of opinion has been evident.

Each group report was prepared by the rapporteur to state the essence of discussions. Reports were reviewed by group participants and finally revised by the rapporteur reflecting participants' comments during the review session. Members supporting various parts of the report do not necessarily endorse them in their entirety or specific language. Moreover, as participants did not review the reports of other groups, the reports do not necessarily reflect the views of all members of the Conference. Participants in the Conference are in no way committed to any position or findings of the discussion groups.

The views expressed in this report are not necessarily the views of The Stanley Foundation.

This report is distributed in the hope that it will stimulate study, research and education in the field of foreign relations and we encourage

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THE STANLEY FOUNDATION
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Muscatine, Iowa 52761 U.S.A.

OPENING REMARKS

By C. Maxwell Stanley
Conference Chairman

The hands of the facsimile clock atop the front cover of *The Bulletin of the Atomic Scientists* point to eight minutes before midnight. This monthly reading, which varies a few minutes now and then, has symbolized for years the urgency of shackling the nuclear genie. Perhaps the greatest tragedy of our time is that now, well into the fourth nuclear decade, the world community has yet to structure its affairs and remove forever the threat of nuclear holocaust, thereby retiring *The Bulletin*'s clock.

The facsimile clock reminds us too of other ticking time bombs, unresolved global threats. The world's population continues to expand---4 billion now, 6.5 billion projected for the year 2000; zero population growth is little more than a distant hope. Increasing population and rising expectations combine to threaten the availability of nonrenewable resources and the balance of biospheric systems. The gravest danger is that irreversible thresholds may be crossed before over 150 sovereign states come to their senses and deal cooperatively with problems. Let us heed the warning of the symbolic clock: time is of the essence.

A year ago I stated that the Eighteenth Strategy for Peace Conference "convenes at an auspicious hour. The time is favorable for the emergence of dynamic and innovative US leadership in the world community's faltering efforts to manage global problems. The opportunity for leadership is always with us; the needs of this troubled world are always present and constantly escalating." I believed that time was unique because of two fortuitous factors: (1) the Carter Administration

had expressed determination to exert leadership and (2) global attitudes toward accepting US leadership were more favorable.

I noted that, as candidate and President, Jimmy Carter had called for a reduced defense budget, curtailment of US conventional weapons sales, new Strategic Arms Limitation Talks (SALT) agreements with lower limits on nuclear weapons, and strengthened détente with the Soviet Union. I mentioned his proposals for indefinite deferral of reprocessing of plutonium recycling, delayed development of breeder reactors, and other measures intended to stave off proliferation of nuclear weapons. I warmly greeted his expressed intention to make greater use of the United Nations and to elevate human rights as a prominent US foreign policy objective. I noted that resolutions of controversies in the Middle East and southern Africa were being sought and the long-delayed Panama Canal Treaties were ready for ratification. On balance, one year ago it appeared that President Carter and his Administration had offered a new thrust to US foreign policy.

It also appeared that global attitudes toward US leadership were more favorable due, in part, to the expressed determination of the Carter Administration to take a fresh look at a number of global problems. Also, increased economic pressure in both developed and developing nations, growing recognition of the need for more effective international and transnational approaches to world problem-solving, and more moderate leadership and postures within the Third World's Group of 77 contributed to the improved climate.

In October 1977, I was cautiously optimistic about the future. It was my hope then, as it is now, that the United States would make more significant contributions to the management of six critical world issues, namely: (1) assuring peace and security, (2) improving the world economic order, (3) accelerating economic and social development of the developing nations, (4) dealing with emerging resource/population balance problems, (5) protecting and enhancing the biosphere, and (6) enlarging human rights.

What has happened during the past twelve months? Is the United States providing stronger leadership, advancing the world toward better management of critical world issues? Was my cautious optimism of a year ago justified?

The current defense budget is the largest ever, despite protestations that it is less than the prior Administration proposed. The Pentagon advocates new and expensive weapons systems such as the neutron bomb and the MX or Multiple Aim Point system (MAP), a variation of the shell game, either of which would be certain to further stimulate the international arms race. The United States still leads the world in

sales of conventional armaments, despite bureaucratic arithmetic purporting to show reductions. The SALT II treaty expected earlier this year has yet to be negotiated with the Soviet Union and the Comprehensive Test Ban Treaty (CTB) seems to be stalled. The Administration's program to deal with the spiraling danger of nuclear weapons proliferation is highly controversial. It has drawn opposition domestically, from our European allies, and from many nations with developing nuclear industry. On the favorable side, this courageous non-proliferation approach may well have sensitized the world to more careful consideration of the uncertain nuclear path we seem to be following.

Little change is evident in the attitudes of our government toward the United Nations. We forfeited a golden opportunity to provide strong leadership in the recent UN General Assembly's Special Session on Disarmament. At the request of the US Senate, the Administration has studied and reported upon ways in which the United Nations might be strengthened and made more effective.

President Carter's outspoken concern for human rights has, indeed, made this subject a prominent objective of US foreign policy. His support of human rights has at least generated some healthy debate on the nature of the issue, but it also has had some unhealthy repercussions. US-Soviet relations have been unnecessarily strained; essential US-Soviet cooperation has given way to confrontation.

May I digress to emphasize that there are different interpretations of human rights. In this country we stress freedom of speech, freedom of assembly, and other political aspects of human rights. We respond strongly to the plight of dissidents or "refusenicks," be they Yuri Orlov, Alexander Ginzburg, or nameless persons in some far-off land. Over half of the people inhabiting this globe, however, view food, health, shelter, and employment as the most basic human rights. And, is not the right to be free from fear and horror of modern war one of the most fundamental human rights? Balance is called for as we try to advance human rights. Has not concern for the Soviet dissidents handicapped negotiation of a SALT II agreement? Are not these negotiations an essential step to checking the arms race and progressing toward a world without war? Does not undue focus upon the political aspects of human rights cause us to draw back from our national responsibilities to aid the developing nations?

Now, back to my appraisal. The Panama Canal Treaties have been ratified by a narrow margin, but only after a bitter domestic confrontation. The United States has tried to play a constructive role in southern African controversies, but the outcome, particularly in Rhodesia, is

uncertain. President Carter's personal intervention in the recent Camp David summit meeting is perhaps the highlight of our foreign policy efforts of the last twelve months.

In summary, the accomplishments of the past twelve months are few; meaningful progress and useful beginnings are overshadowed by shortcomings in program implementation.

Responsible leaders around the world are still ready and willing to accept US leadership. The ratification of the Panama Canal Treaties, and our efforts to achieve peace in the Middle East have been well received. The world community is increasingly critical, however, of the United States and the Soviet Union for their failure to produce a SALT
4 II agreement and a Comprehensive Test Ban Treaty and for the minimal support these overarmed nations gave to the UN Special Session on Disarmament.

Our allies and friends throughout the world are worried about US domestic affairs. Our failure to deal adequately with the energy problems seems incomprehensible. Our persistent, unfavorable balance of payments and the continuing decline in the value of the dollar are alarming. Concern about national attitudes, seemingly detrimental to a stronger US role in international affairs, abounds.

Nevertheless, I believe that global attitudes toward the acceptance of stronger US leadership in global affairs is as favorable as it was a year ago. I base my judgment upon personal contacts with the diplomats of many countries.

Attitudes in the United States regarding stronger American leadership in dealing with global problems have deteriorated noticeably during the past year due to several factors. The bitter controversy over the ratification of the Panama Canal Treaties uncovered surprisingly intense nationalistic opposition. The treaties were ratified by a narrow margin, but the opposition still exists and has redirected its thrust. Controversy with the Soviet Union over human rights has stimulated more anti-Soviet attitudes than have been evident for some time. The result is stronger support for military supremacy and the promise of bitter controversy over the ratification of a SALT II agreement. The current taxpayers' revolt produces demands for reduced governmental expenditures, surely including reduced appropriations for foreign economic aid. When combined, these factors indicate a harder line, more isolationist thinking, and a tendency to draw back from international affairs.

Due, in no small part, to changes in domestic attitudes the outlook for more dynamic and innovative US leadership in the world community

is less favorable than that of a year ago. How can this situation be reversed? How can the lofty aspirations advanced by Jimmy Carter as a candidate and a President be realized?

A willingness to recognize the need to check and reverse the arms race and a determination to do something about it would be an excellent point of departure. Were such recognition and determination to receive tolerable, bipartisan support from the President and Congress, US interests and those of the world community could be well served.

One early step in implementing a program to check and reverse the arms race is to avoid measures that escalate the senseless pyramiding of armaments. Completing the SALT II process would help to check further escalation, get the Soviet Union and the United States back on a fruitful negotiating track, and encourage SALT III progress toward serious consideration of arms reduction. 5

Halting the development of such costly weapons systems as the neutron bomb, the B1 bomber, and the MX or MAP systems would be a second beneficial part of this program. Early agreement between the Soviet Union and the United States on modifications of the Outer Space Treaty to ban the introduction of anti-satellite weapons or systems would also be a positive and timely step. Our first discussion group will deal with the topic of "US-USSR Confrontation or Cooperation in Space."

An important part of a program to check and reverse the arms race should deal adequately with the problem of proliferation of nuclear weapons. Our second discussion group will be considering "US Non-Proliferation Policy: Reevaluation." Strengthening multilateral efforts in the field of arms reduction and disarmament also offers opportunities. Our third discussion group is assigned the topic "US Disarmament Policy: Post Special Session."

Stronger US leadership to check and reverse the arms race requires more public support. A vast educational process is needed to convince a greater segment of our public that such action has a reasonable chance of success and that it is in the interests of our country. One element that must be overcome is fear of the negative impacts of arms reduction. Our fourth discussion group will deal with the subject "Conversion of Defense Industries."

Peace and security, however, is not the only critical issue the world faces, even though it may be the most stubborn, the most important, and the most fundamental to coping with others. The world economic order is in need of rehabilitation. Economic and social development, stabilization of population, and management of both renewable and nonrenewable resources present imposing challenges. Despite recent

attention to the protection and enhancement of the environment, this task is also far from complete. The United States has a real stake in better management of these issues and thus a real obligation to provide ongoing and strong leadership in dealing with them.

For this conference we have selected two topics that relate to this group of critical world issues. "Reorganization of US Foreign Aid," the topic of our fifth discussion group, is directly related to the economic and social development of developing nations. The topic of our sixth group, "Energy and Developing Countries," is related to development, to the effective management of resources, and, to some extent, to the problems of non-proliferation of nuclear weapons.

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US-USSR CONFRONTATION OR COOPERATION IN SPACE

Outer space topics were discussed at our 1974, 1976, and 1977 Strategy for Peace Conferences, and we have published two related *Occasional Papers*. This summer our Thirteenth Conference on the United Nations of the Next Decade meeting at the University of Iowa, dealt with "Confrontation or Cooperation in Outer Space."

So far, the 1967 Outer Space Treaty has been respected and uses of outer space have been peaceful. The United States and the Soviet Union have used satellites for military purposes—intelligence, early warning of ballistic missile attack, arms control agreements verification—and for civilian uses—communications, weather observation, remote sensing, and scientific research. They have cooperated on projects involving manned space vehicles. The only outer space confrontation to date concerns satellite broadcasting of programs crossing national boundaries.

Rapidly developing outer space technology has positive impact upon international peace and security and upon our capability to manage serious global problems. The potential for cooperation between the outer space technology leaders is vast.

But technology also escalates the potential for space confrontation. Research on anti-satellite weapons and systems already fortells an early capability to wage space war in the manner of *Star Wars* and *Close Encounters*. Manned space platforms could be used for launching weapons—other than nuclear weapons or weapons of mass destruction prohibited by the Outer Space Treaty—upon other space vehicles or earth targets.

To avoid such military confrontation, the Soviet Union and the United States need to agree to ban all types of weapons from space and the

deployment of anti-satellite weapons or systems. If an agreement is reached, it could be formalized by an extension of the Outer Space Treaty or by a new treaty open to ratification by all nations, particularly those developing space technology. Fortunately, the two countries have initiated discussions on this topic and a recent Presidential Review Memorandum has outlined US objectives and interests in space.

Now is the time to assure a space regime fully worthy of its nature as the world's last common heritage. By so doing, mankind's long and difficult quest for unity and peace could be advanced.

US NON-PROLIFERATION POLICY: REEVALUATION

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With expanding use of nuclear energy for the generation of power, more and more nations have achieved, or may soon achieve, the capability to produce nuclear weapons. This serious topic has been discussed at Strategy for Peace Conferences as far back as 1961.

The objective of non-proliferation is simple and laudable: if fewer nations have nuclear weapons, the chances of using them are fewer. Achieving non-proliferation, however, is a particularly difficult and complex task because economics, politics, status, technology, and the stability and security of power supply are all involved.

The US commitment to non-proliferation is strong and long-standing. With the Soviet Union we developed the Non-Proliferation Treaty (NPT), in force since 1970 and now ratified by some 104 nations. We proposed the creation of the International Atomic Energy Agency (IAEA) and have supported its safeguard activities. We have helped the London Nuclear Supplier Nations (15 members) to establish guidelines regarding transfer and sale of nuclear equipment and materials. We inspired and are participating in the International Nuclear Fuel Cycle Evaluation (INFCE), seeking alternatives to widespread use of plutonium. We have signed the protocols to Latin America's Treaty of Tlatelolco, which created the world's first nuclear-weapon-free zone in a populated area.

The Carter Administration, building upon studies initiated during the Ford Administration, has made a number of proposals regarding nuclear policies. Congress passed the Nuclear Non-Proliferation Act of 1978 to stiffen US procedures for dealing with other nations in nuclear matters.

Today, non-proliferation efforts are in flux. US policy proposals are controversial. We await the results of INFCE. A second NPT Review Conference is scheduled in 1980. Proposals for multinational centers

to process and store nuclear fuels and wastes are under consideration.

Certainly the time is appropriate to reexamine US policy while we continue efforts to achieve non-proliferation and begin to shackle the nuclear genie.

US DISARMAMENT POLICY: POST SPECIAL SESSION

For 19 years our Strategy for Peace Conference agendas have included discussion groups dealing with some aspect of disarmament. This, no doubt, reflects my personal belief that checking and reversing the arms race is a vital step toward a secure peace with freedom and justice. So far, there has been neither arms reduction nor disarmament. Treaties successfully negotiated by the Conference of the Committee on Disarmament (CCD), adopted by the UN General Assembly and ratified by many nations, have limited placement of armaments in such locations as Antarctica, outer space, and the seabeds and have banned biological weapons and atmospheric nuclear tests. Although the United Nations has passed numerous resolutions favoring disarmament, progress has been largely stymied by the unwillingness of the United States and Soviet Union to agree to meaningful arms reduction.

The recent UN General Assembly's Special Session on Disarmament (SSOD) was an attempt of the nonaligned nations to emphasize the importance of disarmament and to structure programs and mechanisms more likely to make disarmament progress.

Our Foundation played a leading nongovernmental organization (NGO) role prior to the Special Session. Two of our Conferences on UN Procedures and our Twelfth Conference on the United Nations of the Next Decade were devoted to this subject. Our contribution was recognized by an invitation to speak to the Ad Hoc Committee of the Special Session as one of but six invited research organizations worldwide.

I believe that SSOD's major contribution was the structuring of better mechanisms to deal with arms reduction and disarmament. The long dormant UN Disarmament Commission will resume its deliberative role. The First Committee of the General Assembly will deal only with disarmament and related international security questions. A new Committee on Disarmament (CCD), with rotating chairmen and expanded membership, will replace the CCD. These changes, together with SSOD's emphasis upon the urgency of both nuclear and conventional disarmament, provide an opportunity for more multilateral approaches.

In order to take advantage of the opportunities provided by SSOD, a thorough review of US disarmament policy is in order. Is it not time for us to expand our horizons beyond bilateral negotiations with the Soviet Union and provide leadership in both regional and global multilateral approaches? Is it not time that we become serious in our efforts to achieve meaningful arms reduction rather than arms limitation at ever higher levels?

CONVERSION OF DEFENSE INDUSTRIES

This new topic on our conference agenda may appear, at first glance, to be utopian and unrealistic. Upon closer examination, however, the topic is crucial to developing public opinion in support of arms reduction.

Much of the current support for the Pentagon's ever increasing budget requests comes from those who fear an unfavorable domestic economic impact from even the first steps of disarmament. Industries manufacturing military equipment and supplies, together with the workers in their plants and their unions, generally take this view. Opposition to the closing of military bases comes largely from those fearing the negative economic impacts of such actions.

Yet, if the world community is to progress toward its desired goal of a world without war, the arms race must be halted and reversed. This inevitably means less business for defense industries, fewer jobs for those now working in these industries, and the closing of more and more military installations.

I am convinced that conversion of the defense industries on a staged basis is quite manageable. A number of examples provide case studies. This country made a major economic conversion from war to peace immediately following World War II. Industries have successfully phased out of defense production by substituting civilian products. Several communities have found the closing of nearby military bases to be less than traumatic; some closings have had positive effects.

The need today is to document some of these experiences and examine closely the complex relationships among civilian and military governmental bureaucracy, industry, unions, workers, and communities. Such examination could stimulate programs and procedures to manage converting defense industries and retraining and relocating defense workers. These initial steps could allay unwarranted fears and emotional opposition to arms reduction. Both the executive and the legislative branches of our government could then examine arms reduction and disarmament policies on a security rather than an economic basis.

REORGANIZATION OF US FOREIGN AID

Development sufficient to assure survival is the all-consuming concern of 1.5 billion inadequately fed people, half a billion of whom are severely malnourished. Development beyond minimal levels of human decency is a compelling objective of the leaders of a billion and one-half people. The great majority of the world's people do not willingly tolerate living standards incompatible with human decency; nor should the industrialized nations tolerate these conditions.

Financial and technical aid from the more prosperous to the developing nations became a global practice soon after World War II, as the UN Charter broke new ground. The imaginative US European Recovery Program—Marshall Plan—not only rehabilitated Europe, thwarting the Communist threat, but also set a precedent for government-to-government bilateral aid. With the collapse of Western colonialism, the technical and financial needs of the new nations led to multilateral aid through the United Nations and its agencies as a supplement to bilateral aid.

During the 1950s and early 1960s, the United States responded generously, devoting about one-half of one percent of our gross national product to foreign aid. This level of commitment was stimulated by the Cold War as we sought to gain friends. Since then, there has been a steady decrease in our foreign aid commitments—less than one-fourth of one percent of our Gross National Product (GNP) in 1977 compared to the UN objective of 0.7 percent of GNP. This decline resulted from disappointment with development progress, matched by a nagging sense of frustration: no light was seen at the end of the tunnel. Polemic finger-pointing by some developing nations has antagonized our lawmakers. As internal economic conditions have tightened, we have become less sympathetic and generous.

Believing that an ongoing foreign aid program—economic as contrasted to military—serves US long-term interests, I encourage a reexamination of our approach. What should be our goals and objectives? How should our efforts be divided between bilateral and multilateral programs? Should the economic aid programs of our government be concentrated in a single agency? What reorganization would strengthen our aid programs?

ENERGY AND DEVELOPING COUNTRIES

A significant part of my career as an engineer has involved power supply within the United States and several developing countries. I am fully aware of the importance of adequate, dependable, and economical energy supply and its relationship to the economic and social prog-

ress of any nation. As a matter of fact, there is a striking correlation, measured by any of several criteria, between energy consumption and the status of development.

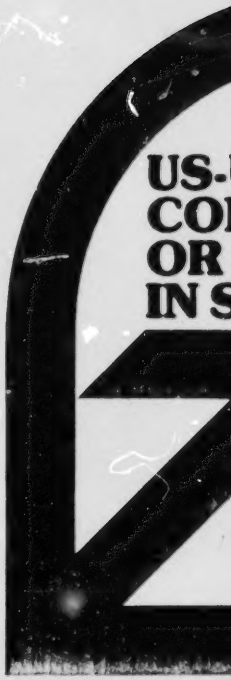
Supplying energy in many developing nations is more difficult than industrial nations often realize. Too few have developed or potential sources of petroleum or coal. Many have little, if any, hydro power potential. Many are forced to depend, to a great extent, upon imported fuels, not only for operating vehicles but also for generating electrical energy. Industrialized nations are able to turn to nuclear power for supplemental sources of electrical energy; this is seldom a viable approach for most developing nations. Their aggregate power requirements are often too small to achieve economy with this type of generation.

Developing nation dependence upon imported petroleum or coal seriously affects their economies; unsatisfactory balances of payments are further strained. Whether a developing nation seeks to exploit renewable sources of energy or turns to nuclear power, it faces substantial additional investments. Generating power in developing countries involves stubborn economic and technical problems. We hope an examination of this topic reveals practical suggestions about supplying appropriate energy to developing countries. How can industrial and/or energy-rich countries assist? Is there need for United Nations or other international organization activity in the field of energy?

CONCLUSION

This conference convenes at an hour that is less auspicious than a year ago; nevertheless, the hour is most challenging. Some of President Carter's expressed aspirations must be implemented. Useful beginnings in some areas have been made; advantage must be taken of these. Domestic "anti" attitudes need to be overcome lest our leadership in the world arena be paralyzed.

No area of our foreign policy deserves greater attention than the relationships between the Soviet Union and the United States. The ideological and military confrontations between these two great powers handicap world community efforts to deal not only with the issue of peace and security but also with many other global problems. Until these two nations become more cooperative, the hands on *The Bulletin*'s clock will continue to point to eight minutes before midnight. They may, in fact, move forward. Strong US leadership to implement President Carter's aspirations is the path to the needed cooperation not only with the Soviet Union but with the rest of the world.



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US-USSR CONFRONTATION OR COOPERATION IN SPACE

INTRODUCTION

In the last analysis, the extent to which US-Soviet interactions in space are cooperative or antagonistic depends on the degree to which national interests are compatible. It was this question—"US-USSR Confrontation or Cooperation in Outer Space"—which was the focus of this working group at The Stanley Foundation's Nineteenth Strategy for Peace Conference.

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In an announcement released on June 20 of this year, President Carter outlined seven broad US goals in outer space:

—The continuation of free access to outer space for peaceful industrial and scientific purposes.

—The preservation of this right for all nations, and the continued rejection of territorial or other claims in space.

—Noninterference with space activities shall ensure the safety of the space activities of any nation; further, attacks on such space activities shall be considered infringements on sovereign rights.

—The United States will engage in space activities in support of its own national objectives.

—Survivability of US space systems will be pursued consonant with national objectives and requirements.

—The United States strongly prefers limitation to deployment in the matter of anti-satellite capabilities.

—If an appropriate, verifiable agreement to this effect is not attained, however, then the United States will vigorously pursue the development of its own anti-satellite (ASAT) capabilities.

The statement of these principles follows on recent efforts of the Soviet Union to acquire an ASAT capability. Should negotiations to restrict such space systems fail, the United States intends to proceed with its own programs. The potentially grave consequences resulting from an "arms race in space"—including the investment costs of these programs and negative impacts on peaceful uses of space—may exact severe penalties, not only from the antagonists, but also from all nations who stand to benefit from space.

THE MILITARIZATION OF OUTER SPACE

The theme of "US-USSR Confrontation or Cooperation in Outer Space" is strongly characterized by two features:

First, space has already seen considerable militarization. Since the early days of the "space age," both the United States and the Soviet Union (and more recently, other nations) have placed in orbit a variety of systems designed to support the conduct of traditional earthbound military operations, both tactical and strategic. Satellites are widely used in such generic missions as intelligence collection, communications, weather observation, and navigation. With the exception of the limited US anti-space weapons developments in the early and mid-1960s and the more recent Soviet efforts, military space systems are "passive," that is to say, they **support** "terrestrial" operations as opposed to actively participating in hostilities. So far military activities in space have included the testing but not operational emplacement there of weapons.

Second, the unique characteristics of outer space prohibit the use of easy analogues to earthbound environments in the examination of this problem. The group agreed on the following general concepts:

1. A satellite or other orbiting body which carries a lethal mechanism cannot practically be construed to be exclusively a defensive system.

2. Armed space vehicles may incorporate either of two types of **lethal mechanism:** those which utilize kinetic energy (by explosive fragmentation or simple nonexplosive collision) or those which employ a directed energy system (such as high-energy lasers) to incapacitate or interfere with other space systems.

3. The scope of possible conflict in space vehicles include the following hostile actions: attack by a space-borne vehicle of another space-based vehicle; attack by a space-based vehicle of a nonorbiting vehicle (targets on the earth's surface, targets present in the atmosphere, or targets whose trajectories place them temporarily in outer space (ballistic vehicles); and, attack by earth-based systems (*e.g.* high-energy lasers and direct-ascent anti-satellite weapons) against space-based targets. In general, a weapon was described by its basing principle, *i.e.*, weapons were either earth- or space-based.

4. A space weapons system is normally defined as a system which does not only include a lethal mechanism but which also includes the necessary sensors, control and instrumentation necessary for target acquisition, aiming, firing, and damage assessment.

5. The group, in its deliberations, considered weapons of mass destruction as having been banned by existing international agreements and consequently, in its discussions at this session, dealt

only with weapons of less than mass destruction capability.

It is often the case with space-borne systems that it is extremely difficult to make a clear distinction between military and civilian systems dedicated to benign or offensive operations. The group agreed that while some systems were obviously in one category or the other, many systems would reside in some intermediate grey area, at least as far as they were perceived by another nation. For instance, a laser that might be employed in a solar power satellite as a means of transmitting power to earth receiver stations might also be viewed as a kill mechanism against satellites or intercontinental ballistic missiles (ICBMs). The group noted that it would be difficult to determine unambiguously the nonhostile purpose of a device with technical characteristics common to civilian and military systems. Similarly space systems, such as the missions of the US Space Shuttle or the Soviet Salyut, could perform both civilian or military missions with equal facility.

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Since traditional categorizations (offense/defense, military/civilian) are unsatisfactory in approaching the problem of conflict avoidance in space, the group discussed the issue in terms of other criteria. Context-dependent notions such as intent and effect of anti-satellite operations were considered as graduations of severity of conflict. A distinction was argued between "quantity" of threat (grave/mortal to nuisance) and "quality" of threat (economic, psychological, *etc.*), but no useful conclusions could be drawn.

It was generally agreed, though, that while an attack against any US space asset constituted a hostile move against US sovereign rights, there was a practical difference between attacks on different kinds of space systems. It was agreed that attacks on strategic satellites (such as early warning systems) were especially serious events because (1) they could very well presage a full-scale intercontinental nuclear strike and (2) insofar as these systems contribute to strategic stability they would be essential if a nuclear war was to be limited or terminated. These space systems tend to be in more remote orbits, however, and this attribute might be significant with respect to any possible arms control agreements pertaining to outer space. This suggests that operational and performance characteristics of space-borne systems may prove useful discriminants in any effort to control the deployment of weapons in space and differentiate between civilian and military operations there.

We would not like to leave the impression that the United States would tolerate destruction of **any** US satellite, even if such destruction would not in itself be a *casus belli*.

UNITED STATES INTERESTS IN OUTER SPACE

Any emplacement of weapons in outer space poses a grave threat to current space systems serving both civilian and national security purposes. Inasmuch as both the United States and the Soviet Union may be said to be crossing a new "threshold" in the use and exploration of outer space, possible military developments must be carefully appraised with respect to their potential impact on future US space initiatives, particularly civilian programs. To this end, the group investigated the following questions: (1) How would the introduction of weapons into outer space affect civilian programs, both current and anticipated? and (2) How would such a trend influence current military programs, and certain future national security systems, which would not themselves involve any lethal mechanism?

Traditionally, both civilian and military uses of space have exploited the panoramic view of earth available from high altitudes (or, as with some research purposes, the unimpeded view towards outer space). Examples of applications include weather observation, navigation, communications relay, reconnaissance and other kinds of remote sensing. Now the promise of new industrial techniques and methods (for example, materials processing in a zero-g/high vacuum environment) may encourage a much larger extension of the earth's economy into space. The extent to which the safety of such programs can be guaranteed, either by negotiated peace or by active defense, will be a central consideration in corporate and national decisions to invest in costly space programs. While the scope and direction of "space industrialization" remain uncertain, the group largely agreed that the presence of armed systems in space (intended to destroy space systems) would severely discourage industrial exploitation of the exoatmospheric environment.

Moreover, the space competent nations have taken advantage of space systems for the gathering of intelligence information, the determination of Soviet and US adherence to arms limitation agreements, navigation of military platforms (including ballistic missile submarines), and early warning of Soviet ICBM launch. The group noted that few of these systems would constitute a practical threat to any nation during times of conflict, while such space systems are critical components of strategic stability.

SOVIET MOTIVATIONS

The group determined that the Soviets probably perceive powerful incentives to build, test and retain an ASAT capability. Soviet motivations were discussed, and it was agreed that unless those motivations

were addressed and taken into account, no arms control agreement could be effectively constructed. Accordingly, four reasons were considered in the group by way of explanation:

1. The Soviets may have been attempting to achieve an ability to destroy US reconnaissance satellites.

2. The Soviets originally commenced ASAT as a counter to certain US space warfare programs like Manned Orbiting Laboratory (MOL), Satellite Interceptor (SAINT), and DYNA-SOAR (for Dynamic Soaring, a US "space bomber" program).

3. The Soviets may be seeking an ASAT capability with which to counter the space systems of "third nations," like China, France, and the Federal Republic of Germany. There is no doubt that the Soviets view the proliferation of space-borne intelligence gathering and other military capabilities of these nations with great concern.

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4. More recently, the Space Shuttle may have inspired some ASAT efforts. ASAT tests begun in 1976 might correspond to potential threats that the Space Shuttle would raise to the Soviet Union. Indeed, nations have suggested the spectre of Shuttle operations as providing potential for weapon platforms and, therefore, should be a topic in ongoing multilateral disarmament negotiations.

The group thought that consideration should be given to certain distinctive Soviet policies and preoccupations, such as interest in the security of its borders, concern with air defense (and correspondingly with defense in space), various bureaucratic imperatives, and the traditional Soviet penchant for secrecy.

The question arose as to whether the Soviet ASAT program was "saber rattling." It was agreed that the incremental character of Soviet tests were probably indicative of a deliberate and practical ASAT effort. Moreover, it was pointed out that the long development times of space systems precludes easy change of programs for political or propagandistic convenience.

RESPONSES TO THE PROBLEM OF THE INTRODUCTION OF WEAPONS INTO SPACE

The group agreed that space may prove to be an economic sphere of value. The safety of space, not only for civil programs, but also for those systems which enhance strategic stability, was recognized by the group to be to the advantage of both the United States and the Soviet Union. In this connection, it was the group's opinion that the willingness of both powers to consider and implement restraints on anti-satellite systems would have a direct impact on the long-term potential

for cooperation in space. The group also concurred that restrictions on military space pursuits should not impair the potential for civil exploration of space. It was noted that space arms control initiatives should consider these various possibilities.

After it had considered subsidiary questions of intent and interest, the group proceeded to consider the central question: "What response to the potential threat of conflict in outer space is in the best national security interests of this country?" Thus, the United States has available to it the following broad lines of action: (1) military response (the deployment of offensive systems of our own, the "hardening" of friendly space systems, and the deployment of redundant systems to compensate for possible destruction of some space systems) and (2) negotiation (either bilaterally with the Soviet Union or in a multilateral context).

The group first agreed that the increasing militarization of outer space was not in the best interests of the United States. First, the threat of space conflict could impede the development of the most promising civil applications of space and poses substantial risk to current and anticipated (and costly) US space programs, such as the Space Shuttle. While some degree of hardening of satellites is possible, the group concurred that hardening both increases the price and lowers the effectiveness of US space vehicles (since the defensive shielding trades off with useful payload in size and weight). Additionally hardening can prove only modestly effective against a determined attacker. There was agreement that the United States would fare better than the Soviets in space war (due to superior technology); however, any such superiority would be more than neutralized by the costs of destroyed US space assets: furthermore the group agreed that the United States appears to be more dependent on space systems than is the Soviet Union.

Moreover, it was not entirely clear that the military worth of space weapons is commensurate with the present costs of such systems. It was noted that a US anti-space capability had the following military values: (1) as a combat system in its own right; (2) as providing the potential for in-kind reprisal to Soviet ASAT efforts; (3) more broadly, as a deterrent to Soviet outer space hostile activities. In addition, there is the political consideration of not allowing the Soviets a perceived advantage in this arena. There was a consensus that the use of space weapons as military instruments did not now seem cost-effective, and increased the chance of hostilities. There was some criticism of the deployment of space weapons as a counter to Soviet ASAT (reasons 2 and 3 *supra*) on the grounds that the diversion of money to military space activities would, given lean budgets, come at the expense of

other important US programs, both civil and military. Still there was more or less general agreement that continued Soviet testing of ASAT systems in space, if not curbed by treaty or unilateral action, will bring about the vigorous development of countervailing US capabilities.

With regard to the question of space arms control, the group was agreed on the following points: By far the most important avenue for space arms control would be the formal negotiation of both bilateral and multilateral treaties to prohibit or limit ASAT systems. Treaties must seek the following goals: the establishment of international organs for space arms control; the inclusion of all concerned nations into discussions; the establishment of measures for verifying compliance with agreements.

Inspection was only a partial solution to the question of civil-military ambiguity of space vehicles. The United States itself would be reluctant to allow inspection which would compromise proprietary information or national security information. Also, past experience suggests that the Soviets will not tolerate intrusive US inspection of their space craft. Nor would surface-based space weapons (direct ascent ASAT devices and beam weapons) be accessible to inspection.

There was a spread of views relating to US responses. Everyone realized that a spectrum of responses was conceivable. Some felt the United States should make no response in the space arena at all and instead, focus on the earthbound arena. Others felt that responses in the space arena were appropriate, but should be limited to the creation of redundant systems and capabilities. And others felt that US responses should go further. If the United States is compelled to develop its own ASAT capabilities, that response should be measured if not restrained. A US ASAT capability should approximate that of the Soviet Union, and not exceed it.

International joint ownership and management would help insure that civil programs were not being modified for military objectives. Protocols could be developed to further discriminate civil from military platforms.

The group cited four means by which a space arms control pact could be defined: restrictions on research and development (R & D), on testing, on deployment, and on use of ASAT systems. It was immediately agreed that compliance with R & D restrictions was practically impossible to verify. A nonuse treaty is easy to define and conclude but it was the consensus of the group that a plan based on nonuse was somewhat meaningless as the basis for a treaty, since there is no restriction on testing and deployment. The high cost of developing systems (whether they are used or not) could be avoided

by restrictions on deployment. However, the question of verification of nondeployment of systems (especially earth-based systems) needs substantial additional study. Finally, restrictions on deployment and use fail to anticipate a radical change in the space war environment, which might lead to a break-out*, and advantage, by a side which had been developing such systems during the time of the treaty.

It was the majority opinion of the group that restrictions on testing were probably the best route to arms control in space. It is likely that parties to an agreement would become aware of full-scale tests involving traditional kill mechanisms. Novel weapons such as earth-based lasers pose more of a difficulty. However, developments in laser technology necessary to overcome current technological limitations might be detected by some new means.

The group agreed that the break-out question in the context of a no-test agreement needs further study. Thus if one side prepared space systems, it would take some minimum time interval which these systems would have to be tested before they could become completely operational. Also, the group decided that agreements would require precise wording, so that profitable civil uses of space systems would not be prohibited.

Because of the ambiguity of many space systems, and the possibility that a nation could undertake certain technical work in support of a future system, it was agreed that a no-test agreement should be defined within broad ranges of conduct. If activities in space appear to be in support of military objectives, then consultation could determine the true motivation of the perpetrator. No treaty would be entirely dependent on "certain" verification. An alternative to this process might be enhanced US verification facilities, which might be expensive.

Moreover, exchange of information could assist in clearing away any anxiety or ambiguity about space activities. Such exchanges could occur bilaterally, multilaterally, and through such formal entities as standing consultative committees.

Finally, the group considered the distinction between arms control on a bilateral basis (US-Soviet) and multilateral discussions involving the many nations and other organizations which are acquiring the abilities to exploit outer space. It was the group's opinion that the procurement of certain space capabilities by such nations as China, the Federal

*"break-out" refers to an attempt by a nation to suddenly gain a military advantage by deploying a new system the development of which has been clandestinely accomplished.

Republic of Germany, and France, might be a strong motivator of the Soviet move to develop ASAT systems. Thus, it might be the case that negotiation with the United States alone might have no effect in curbing Soviet initiatives. While bilateral issues are important, the group recommends that the activities and implications of the activities of "third nations" in space be considered in any space arms control agreement and the possibility of third nation participation be retained. The group further recommends that such talks be devoted to the goal of restricting future arms developments, as opposed to concentrating on counteracting past and current developments.

SUMMARY

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The group is agreed on the following points:

—It will be extremely difficult to negotiate meaningful space arms control agreements for a variety of reasons.

—The threat of ground-based ASAT weapons is presently more serious than the threat of space-based systems.

—Arms control efforts should focus on putting a ceiling on current space weapons, as well as attempting to restrict the deployment of new weapons systems in outer space.

—Negotiations should first consider those systems which have been designed expressly for anti-satellite uses, and then deal with systems having incidental ASAT capabilities, *e.g.*, the Space Shuttle, Salyut, teleoperated devices—which must be dealt with on a case by case basis.

—Arms control agreements must be designed to permit the eventual participation of all space-competent nations.

—The self-enforcing qualities of many restrictions (conventions and protocols which would work to mutual advantage) should form the core of the earliest agreements, because agreements which depend critically on verification will be more difficult to achieve.

The group recommends that further attention be paid to:

—The third party role in space, especially as it may relate to Soviet motivations

—The long-term implications of arms control agreements for civilian use of space.

The group recognizes that the prospects for significant cooperation in space between the United States and the Soviet Union will be materially affected by the extent to which early agreement can be reached on limiting anti-satellite capabilities.

US NON-PROLIFERATION POLICY: REEVALUATION

DISCUSSION GROUP REPORT

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US NON-PROLIFERATION POLICY: REEVALUATION

INTRODUCTION

Efforts to control the proliferation of nuclear weapons have preoccupied successive US Governments since 1945. The most recent stage in the evolution of US non-proliferation policy is generally thought to have its roots in certain events which took place during the mid-1970s. The Indian nuclear explosion of 1974, the arrangements for the sale of reprocessing plants to Brazil, Pakistan, and South Korea announced in 1974-75, and the proposed sale of nuclear power plants to Israel and Egypt in the aftermath of the 1973 war, all of which took place at a time of unprecedented growth within the nuclear power industry worldwide, resulted in a new wave of concern in the United States over the dangers of nuclear weapons proliferation and the link between nuclear weapons and nuclear power. Already an issue of major importance in Congress, the problem of proliferation was subsequently assigned top priority by the newly-elected President Carter.

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The results of the Administration's efforts were enunciated by the President in two important policy statements in April 1977. To a significant extent, the new policy reflected trends that had already been established by President Ford in a major address on this subject several months earlier. The principal elements of the Carter Administration's policy were discussed in detail at the last Strategy for Peace Conference (*Eighteenth Strategy for Peace Conference Report*, October 13-16, 1977, pp. 2-9). Rather than taking the policy as originally announced as its starting point, the group this year sought instead to focus on an assessment of the trends in the articulation and implementation of various elements of US non-proliferation policy that have emerged over the past year. In this sense, the group's deliberations can be regarded as a continuation of last year's discussion.

Several major developments with direct relevance to non-proliferation policy have taken place over the past twelve months. These include the passage and initial implementation of the Nuclear Non-Proliferation Act of 1978 the completion of the first year of the International Nuclear Fuel Cycle Evaluation (INFCE)—a study launched at President Carter's initiative, in which over fifty countries are now participating, and the submission to the International Atomic Energy Agency (IAEA) of a set of guidelines for international nuclear trade voluntarily undertaken by the "London Group" of nuclear supplier nations. The past year has also seen progress towards the full im-

plementation of the Tlatelolco Treaty for the prohibition of nuclear weapons in Latin America, and the apparent termination of the arrangements for the French sale of a reprocessing plant to Pakistan.

These events have occurred in a background characterized by an outlook for nuclear power growth significantly less optimistic than that of a few years ago, when the concerns which gave rise to them began to gain momentum. Many factors have contributed to this change, including both generally diminished projections of overall energy demand and unresolved problems, unrelated to the proliferation issue, which have tended to reduce the readiness to make commitments to nuclear energy. The impact on the nuclear power industry has in some cases been quite severe, particularly in the United States, where domestic difficulties have been aggravated by a continuing decline in the share of the international nuclear power reactor market commanded by American industry.

At the same time, however, leaders in both industrialized and developing countries have continued to emphasize the importance of the role of nuclear power in their national energy programs.

THE NUCLEAR NON-PROLIFERATION ACT OF 1978

The group discussed the impact of the Act and its implementation on perceptions of the United States as a partner in international nuclear trade and cooperation. The stated purpose of the Act is to improve reliability of US nuclear supplies under effective non-proliferation restraints. Some participants of the group believed that the Act effectively advances these purposes. Nevertheless, others felt that, despite its positive features, the Act has created two important problems. In the first place, the wide distribution of authority provided has been viewed by US trading partners as increasing unpredictability in the decision-making process. Secondly, the Act requires the US in some circumstances to attach new conditions to existing supply arrangements that it had entered into under Agreements for Cooperation with its partners. The diplomatic and commercial consequences of such unilateral changes were seen, in this view, to be severe. The recent interruption in supplies of US-enriched fuel to the Euratom countries because of the failure by the latter to have indicated a willingness to renegotiate the existing agreement with the United States within the 30 day period required by the Act was cited in this context. Note was taken of the shock, almost extending to disbelief, experienced throughout the Euratom community as a result of this event. Although the interruption was generally felt to be an unfortunate consequence of the Act, there was a general recognition that it arose from miscalcu-

lation, rather than from any deliberate intent to achieve such an effect at the time that the Act was passed.

Implementation of the Act on another occasion—the export of fuel to the Indian reactors at Tarapur—also drew a mixed response from the group. On the one hand, the decision to allow the exports to proceed was seen to demonstrate the advantage of the newly provided ability of the President to override a failure by the Nuclear Regulatory Commission to authorize a license. It was also felt that this decision showed the flexibility contained within the Act. On the other hand, this same action was criticized for having given rise to an anomalous situation in which fuel was being exported to India—whose nuclear explosion of 1976 was still causing international reverberations, while at the same time an embargo had been imposed on fuel shipments to the Euratom allies of the United States.

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In discussing the Act's impact on the reliability of the United States as a supplier of fuel, it was observed that any heightening of perceptions of unreliability caused by the Act would ultimately work against US non-proliferation objectives. This was because the immediate effect would be to drive existing and potential customers to other sources of supply, which were becoming increasingly available, and whose non-proliferation conditions might be less stringent than those required by US policy.

The group generally noted, however, that questioning of US reliability began well before passage of the Nuclear Non-Proliferation Act. The decision taken by the United States in 1974 not to enter into any new enrichment contracts owing to the full commitment of existing capacity and the difficulties associated with the granting of export licenses by the Nuclear Regulatory Commission were both seen to have had important, adverse impacts on perceptions of US reliability, which, moreover, had still not been fully dispelled. Indeed, one objective of the Nuclear Non-Proliferation Act is to increase the certainty of the export licensing process. In addition, the Act has given a Congressional imprimatur, through the provision of Section 104, to the Administration's proposal for an international fuel bank made within the INFCE forum.

On a related issue, it was noted that not all of the uncertainties in US nuclear export policy are attributable to the Act. In particular, determination of the conditions required for US approval of requests for retransfer and reprocessing of fuel of US origin were primarily a matter for Administration policy. The Act itself requires a specific finding applicable to such arrangements, while the Administration had adopted additional restrictions even before the Act was passed.

There was general consensus within the group that not enough time had yet passed to be able to assess the impact of the Act in its entirety. Indeed, implementation of the requirements under the Act for new Agreements for Cooperation and for renegotiation of old ones had scarcely begun. It was generally agreed that implementation of the Act would provide a test for the United States to demonstrate its role as a reliable supplier.

US NUCLEAR FUEL CYCLE POLICY

An issue that was repeatedly raised in connection with the implementation of the Non-Proliferation Act, but whose ramifications were seen by many members of the group to be even more far-reaching, was the question of US policy towards the nuclear fuel cycle. Three different dimensions to the policy were identified as having an impact on US non-proliferation objectives, and in all three cases—international utilization of plutonium, domestic use of plutonium, and domestic use of nuclear power in general—much of the discussion consisted of attempts to determine precisely what US policy is. Most members felt that the clear articulation of US policy towards international reprocessing and utilization of plutonium was of particular significance in this respect. There was general agreement that there had been some accomodation in US policy towards reprocessing of US-origin fuel abroad in the months since April 1977. However, many members also expressed the view that the US position on this issue was currently dominated by uncertainty, and such uncertainty could only hinder US non-proliferation objectives. Some attributed this uncertainty partly to the fact that too many voices were expressing the policy, and partly to the existence of a "communications gap," which sometimes prevented authoritative expressions of Administration policy from being more widely known.

The group recognized a need for a clear policy on reprocessing and plutonium utilization. Although it was generally agreed that reprocessing would proceed overseas whatever US policy towards it turned out to be, there was also agreement that US policy would affect the extent of such reprocessing. However, discussion of what would be an optimal policy to adopt on this issue from a non-proliferation perspective was inconclusive. Some members expressed the view that if a policy in favor of reprocessing were adopted, its effectiveness would depend on the existence of clear legislation to that effect. The group divided on whether the explicit recognition of plutonium as a necessary and important fuel would achieve better non-proliferation results than if the emphasis was placed on finding alternatives to its use. (The question of

timing, which formed an important part of this discussion, is dealt with in a later section.)

There was also no consensus on whether, should reprocessing proceed abroad, the United States should continue to desist from reprocessing domestically. Some argued that US self-denial would increase its capability to achieve other non-proliferation objectives, while others felt that such self-denial would dilute its influence.

There was, however, a consensus within the group that a continued commitment to nuclear power domestically would strengthen the ability of the United States to achieve its non-proliferation objectives. Here again, though, some members expressed the view that uncertainty which they perceived to surround the current Administration's attitude towards the domestic nuclear power program was a major obstacle to a commitment of this kind in the United States and this reduced the credibility of US claims to foreign observers that such a commitment is indeed a primary policy objective.

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THE INTERNATIONAL FUEL CYCLE EVALUATION (INFCE)

With INFCE already half over, and general agreement that no US "grand strategy" for the remainder of the exercise has yet emerged, some members expressed surprise that the United States should have initiated the effort without having such a strategy in mind. Others felt that the initiative was taken by an Administration which was under international pressure as a result of its earlier non-proliferation policy pronouncements, and which saw INFCE primarily as a stop-gap measure to reduce this pressure. Still others argued that by not having a general design, the United States was in fact entering into the evaluation in good faith, without prejudging the outcome. The suggestion was made that there was, nevertheless, a hope within the Administration that INFCE might provide an international confirmation of its view that plutonium recycle in light-water reactors (LWRs) provided at best marginal benefits. In fact, there has been a marked reduction in international interest in LWR recycling, although it is by no means clear that such a trend would not have occurred even in the absence of INFCE.

On the other hand, the longer-term commitment by many of the industrialized countries to the use of plutonium in breeder programs has remained undiminished. Concern was expressed within the group that INFCE would ultimately lead to no accomodation of views and that, even though it was not a negotiation, such an outcome could be counter-productive.

There was general agreement that the United States had already modified its position at INFCE quite significantly. The focus of US efforts has narrowed to a consideration of fuel cycles with which there is general familiarity, including uranium and plutonium-based cycles in LWRs, heavy-water reactors (HWRs), and breeders, as well as thorium cycles. In addition, the consideration of institutional approaches has increased in importance.

The group was generally agreed that the INFCE process is serving a useful purpose in terms of communication and examination of technical issues; perhaps most importantly, it was viewed as a necessary prelude to a political counterpart of INFCE, which many members viewed as a logical and desirable next step.

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Thus, INFCE was generally regarded as only one of an array of approaches in the search for international consensus on non-proliferation policy. Nevertheless, underlying much of the group's discussion of INFCE was the implicit feeling that it would be beneficial to seek some accommodation as an objective in this forum. In the view of some members, however, such an objective could not be achieved without a willingness on the part of the United States to depart in some measure from its opposition to reprocessing and the commercial use of plutonium. In this view, time is of the essence, and a clear articulation of such a new position was called for soon. Other members believed that a significant departure on the part of the United States might be unwise, and would in any event be premature. All agreed that accommodation within INFCE would also require movement on the part of other participants.

INSTITUTIONAL ISSUES

As mentioned previously, institutional approaches to the achievement of improved proliferation resistance are receiving increased emphasis in INFCE and in US policy analysis, but there were differences within the group as to which approaches were most promising. There was general recognition of the difficulty of creating new institutional arrangements, and there was more support for the strengthening of existing institutions and the development of new arrangements under their auspices.

There was acknowledgement that the unrestrained distribution of sensitive facilities involved clearly unacceptable proliferation risks, but there was no consensus on whether or how a regime could be fashioned which limited reprocessing to only a few countries.

One approach suggested was the development of a regime involving strengthened safeguards coupled with arrangements for the prompt

application of countermeasures against any violation of non-proliferation undertakings. Some believed that such a regime could enable sensitive activities such as reprocessing to proceed with acceptable proliferation risks in countries where a genuine need for reprocessing existed. The proponents of this approach expressed the view that large-scale commercial fuel cycle facilities were inherently easier to safeguard than small-scale experimental facilities, and provided intrinsic assurances that the facilities were devoted to legitimate fuel cycle purposes which might be lacking in the case of smaller plants located in countries with only a few nuclear power reactors. Others felt that judgments on this approach should be reserved until the proposed safeguards arrangements and countermeasures could be examined more closely and a criterion for need more clearly defined and assessed.

The potential value of multinational schemes for conducting sensitive fuel cycle activities was advanced by some as an approach worth considering. Building on existing fuel cycle facilities and institutions was suggested as a promising approach to multinationalization; but it was noted that concern existed that the adoption of such an approach could provide premature encouragement and legitimization of reprocessing and plutonium utilization.

More ambitious schemes of multinational or international arrangements for the conduct of sensitive fuel cycle activities were discussed, having as their historical basis the original proposals of the Acheson-Lilienthal Study for a global atomic development authority. There was a general feeling that proposals as ambitious as this were not realistic and that multinational groupings of a limited number of countries were more promising than global arrangements.

The group had before it a discussion paper expanding on a suggestion advanced in last year's meeting, for a scheme of "international enclaves" within which individual nations could conduct sensitive fuel cycle activities under tight multinational control over nuclear materials ingress and egress. The discussion of this approach was limited but the concept was felt to be worth further consideration.

The group noted the plutonium management scheme which has been advanced by the IAEA. There was a consensus that this plan should receive full consideration by the international community, including the United States, but that there appeared to be no immediate need for the implementation of such an arrangement in view of the limited quantities of spent fuel being reprocessed at the present time. The means and criteria under which plutonium entrusted to such an international management scheme was released to participating countries

was identified as one of the principal problems in evaluating the merits of the approach. Doubt was expressed by some as to whether such an arrangement would really provide better protection for separated plutonium than it is likely to receive in the nuclear-weapons states, where most reprocessing is likely to be carried out in the foreseeable future.

The importance of the Non-Proliferation Treaty as a major bulwark against proliferation was generally affirmed. Additionally, it was stressed that the Treaty contains reciprocal obligations on the nuclear-weapons states and other advanced countries in the form of Articles IV and VI, which must be observed if the Treaty is to have maximum effectiveness.

THE PROSPECTS FOR INTERNATIONAL CONSENSUS

It was observed that there were differing perceptions of the risks of further proliferation throughout the world, with the United States generally more inclined than other nations to see proliferation as inevitable without considerably stricter control measures, and to view commercial nuclear fuel cycle activities as a likely route to nuclear weapons. Nevertheless, there was agreement that the proliferation threat is universally recognized and that non-proliferation as a policy objective is widely shared.

It has become almost traditional for assessments of US non-proliferation policy, whatever their conclusion, to contain a reference to the new climate of receptivity to innovative approaches that has arisen from the recent initiatives by the Carter Administration. The deliberations of this group provided no exception. There was, however, a general awareness within the group that this receptivity is limited in both degree and time. Indeed in the view of some participants, influenced perhaps primarily by the continued erosion of the US position in international nuclear markets, the situation has already deteriorated rapidly—perhaps irrevocably. Others, possibly influenced more by the decreased pace of nuclear power development, did not see a deterioration in the prospects for achieving an international consensus. It was generally agreed that, as contrasted with a year ago, understanding of the issues has grown, and that INFCE is providing a valuable forum for the international dialogue that the group felt was necessary. There was some optimism that progress was being made, and that consensus on new non-proliferation measures was achievable.

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US DISARMAMENT POLICY: POST SPECIAL SESSION

DISCUSSION GROUP REPORT

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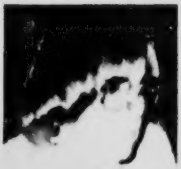

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US DISARMAMENT POLICY: POST SPECIAL SESSION

INTRODUCTION

Notwithstanding the disappointment of some hopes and expectations, particularly as regards the leadership of the superpowers, the 1978 United Nations Special Session on Disarmament (SSOD) produced several immediate and concrete benefits in the area of organizational reform. Perhaps more importantly for the long run, though, and depending on the follow-up to the Special Session, it may one day be seen as the beginning point of a new, more sustained process of international action to deal with the crucial and vexing problems of armaments and security.

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At the outset of its deliberations, the group posed for itself the question of what is meant by disarmament or by the term arms control. Recognizing the UN usage of disarmament as including "all measures related to the prevention, limitation, reduction or elimination of weapons" and rejecting the concept of arms control as merely the management of weapons modernization or of the existing security system, the participants adopted as the **objective of both disarmament and arms control, the reduction of existing weapons and limitation of armaments as yet unproduced or undeployed.** At the same time, the group believed that disarmament should not be sought for its own sake alone but as it contributed to security and a stable system wherein change and the resolution of differences should be accomplished without armed conflict.

Following the wishes of most of the participants, the discussion group chose to concentrate on near-term and achievable solutions to the problems of weapons build-ups and rivalries (recognizing that this focus leaves out efforts at systemic change), while attempting to frame recommendations and proposals that would not preclude more fundamental and beneficial revision of the international system. Throughout its discussions the group was mindful, however, that there is an inherent and possibly sharpening tension arising from the limits of incremental arms limitation and the evidence of growing pressures for either comprehensive approaches or for drastic change in the international system.

Also explicitly informing the group's deliberations was the question of priorities among a variety of alternative courses of action and a variety of issues already well-established on the arms reduction agenda. While

ultimately the group elected not to make very fine judgments as to rank-ordering of options, it was clearly in agreement that decisive action in the area of nuclear arms reduction and the prevention of nuclear proliferation represented the most urgent tasks facing the United States and the international community. On a rather different scale, there was also considerable sentiment that the long-term prospects for successful arms reduction and limitation depend significantly on efforts to expand the understanding of the contribution of such measures to national and international security.

NUCLEAR ARMS REDUCTION AND LIMITATION

The deliberations of the group on nuclear arms reduction and limitation were naturally determined in large measure by the significant list of unfinished initiatives and proposals, many of which are either ripe for conclusion or for serious discussions leading to negotiated security agreements. Many participants considered that progress in non-nuclear arms reduction could not be separated from progress in nuclear arms reduction. While the conclusion of a second Strategic Arms Limitation Treaty (SALT II) would not by itself **necessarily** stimulate advances on other fronts, the failure to conclude such an accord would have grave consequences for other intergovernmental arms limitation negotiations. A clear and well-recognized example of this relationship between initiatives is the potential impact of the conclusion of SALT II or a Comprehensive Test Ban Treaty on the Non-proliferation Treaty Review Conference scheduled for 1980. In view of the consideration of the technical aspects of non-proliferation in another conference group, the participants limited themselves to reaffirming the positive effect of measures designed to reduce nuclear weapons and tests on the problem of proliferation. However, it was noted that the desire for international prestige and for treatment on an equal footing also plays a role in the decision to develop or acquire nuclear weapons, along with security concerns; therefore, attention should be paid to these motives in developing additional nuclear non-proliferation strategies.

In discussing specific nuclear arms reduction measures, as in the discussion of new organizational approaches, many of the participants stressed the need to encourage the participation of other states, and, in particular, the nuclear-weapons states such as France and China, especially in regard to a Comprehensive Test Ban Treaty. There was a general belief, however, that aside from a standing invitation to participate there was little that could be done in this sphere until the other nuclear-weapons states had achieved more significant nuclear arms reduction—a proposition endorsed by France and China.

Considerable attention was given to the legacy, status, and prospects of the Strategic Arms Limitation Talks (SALT). There was general agreement that this process had produced side effects which adversely affected the general aim of arms reduction and limitation and that these side effects needed to be taken into account in framing arms reduction strategies. Some felt that these negative side effects and other weaknesses of SALT may represent near-fatal flaws in the conception and execution of this approach to negotiated security. Others, however, felt that SALT is producing subtle and little-noticed but positive changes; for example, it was noted that, whereas formerly weapon systems shaped SALT, SALT is now increasingly shaping weapon system proposals.

36 The group reflected particular concern that negotiations for SALT III begin as early as possible and deal with such pressing problems as (1) systems near deployment but not currently or only temporarily constrained in SALT II and (2) the increasing and destabilizing US and Soviet hard-target or counterforce capabilities which promise to undermine deterrence by means of the threat of nuclear retaliation. Among the other goals suggested for SALT III were (1) further reductions in strategic nuclear delivery vehicles (SNDVs), (2) reductions in strategic nuclear warheads, and (3) measures for a more effective SALT process. Special attention was devoted to the value of flight testing limitations in slowing the momentum of technological development, particularly to the extent that new nuclear weapons involve fractionation of missile payloads which may require flight tests. In general, though, the group considered that any measures effective in further limiting the qualitative improvement of nuclear weapons should be carefully examined for inclusion in SALT III as a means of reducing capabilities (especially destablizing capabilities), along with reductions in numbers.

Particular interest was expressed in regional nuclear arms reduction and prevention regimes and in reassurances by the nuclear weapons states to the non-nuclear weapons states regarding the use of nuclear arms. In this connection, the group believed that the early ratification by the United States of Protocol I to the Treaty of Tlatelolco (establishing a Latin American Nuclear-Weapons-Free Zone) represented a valuable and positive step. Various formulations of pledges (no-use, no first-use, no first-strike) regarding the non-use of nuclear weapons were reviewed. An important consideration, the group felt, was reassuring states which elected not to acquire or deploy nuclear weapons.

In furtherance of the goal of nuclear arms reduction and fulfillment of the obligations of the nuclear-weapons states undertaken in Article VI of the Non-proliferation Treaty, the participants believed specifically

that the primary focus of US efforts in the next one to five years should be on:

a. Conclusion and early entry into force of a SALT II treaty reducing strategic offensive nuclear weapon systems (delivery vehicles, launchers and warheads) and setting forth the guidelines for further reductions in strategic nuclear weapon systems in subsequent strategic arms limitation agreements;

b. Conclusion and early entry into force of a Comprehensive Test Ban Treaty prohibiting all underground nuclear explosions with due attention given to the early adherence of France and China;

c. Conclusion and early entry into force of a SALT III treaty, emphasizing especially (1) limitations on flight testing and other qualitative and quantitative limits on and reductions of strategic nuclear weapon systems not now deployed or in production and (2) reductions or limits on strategic offensive systems which threaten the nuclear forces of the nuclear-weapons states; 37

d. Proposing to the other nuclear-weapons states at the earliest possible time multilateral negotiations leading to an agreement to halt the production of fissionable materials for weapons purposes and on a system of verification for such a halt. The United States should at the same time announce its willingness to conclude an agreement of specified duration with Great Britain and the Soviet Union should France or China prove unwilling to participate in negotiations or adhere to an agreement;

e. Proposing to the other nuclear-weapons states at the earliest opportunity multilateral negotiations with the aim of halting production of nuclear weapons under an agreed system of verification; the United States should additionally, and apart from negotiations or undertakings with respect to fissionable products, declare its willingness to conclude an agreement of specified duration with Great Britain and the Soviet Union, if France and China prove unwilling to participate in negotiations or adhere to an agreement;

f. Providing leadership in negotiating "effective arrangements to assure non-nuclear weapons states against the use or threat of use of nuclear weapons"—arrangements which would go beyond the nuclear-weapons states asking that the UN Security Council take note of their present individual pledges. Some participants felt such an agreement should include renunciation by the nuclear weapons states of the right to use nuclear weapons against states (1) without nuclear weapons of their own, (2) without nuclear weapons on their territory, and (3) without mutual defense treaties with nuclear weapons states; and

g. Energetically supporting the creation of nuclear-weapons-free zones similar to the zones already negotiated in Latin America bearing in mind the positive impact on these regional initiatives of the no-use guarantees cited in (f) or of other actions which reduce the legitimacy of the use of nuclear weapons.

FURTHER STEPS IN ARMS REDUCTION AND LIMITATION

The group was particularly conscious of the disparity between the difficult and protracted process of negotiation and the relatively more rapid pace of technological innovation. Participants considered that there is an urgent need for more foresight in developing technical and diplomatic strategies to cope with new developments in weapons technologies and allied fields.

The group also took note of the problem presented by weapon systems retained in the advanced research and development (R & D) stage during negotiations but not ultimately limited in an agreement. The pressures to go ahead with the production and deployment of systems not specifically constrained are formidable.

Also figuring prominently in the group's discussions was the need not to be limited to negotiations as the only instrument of disarmament. Attention was devoted to several alternatives, including independent initiatives, informal agreements, mutual example force reductions, and conditional or reciprocal restraint. Clear and explicit declarations on restraint, on the range or type of acceptable responses (if anticipated) and the precise duration of conditional offers of self-restraint are necessary to the effectiveness of such initiatives.

In connection with technological assessment, the panel was of the view that ways must be found to foresee the consequences of advances in weapons technology and to initiate the discussion of possible limitations early on in the weapons development and acquisition process. In this connection, it was noted that historically many of the successful measures of arms limitation have been preclusive (Antarctic Treaty, Outer Space Treaty, Seabed Treaty, etc.).

From these observations and from the group's sense of the need to examine neglected or novel solutions for the problems of weapons and security there grew three recommendations which could have a beneficial impact on both nuclear and non-nuclear arms limitation and reduction. They are that the United States:

a. Take advantage of the support that historically follows conclusion of an arms control agreement to sustain the momentum of the

reduction process by *inter alia*, (1) announcing prearranged mutual restraints and confidence-building measures, especially in the area of activities permitted under a SALT II Treaty which, if foregone, will ease the negotiation of SALT III or other agreements and (2) announcing independent conditional restraints specifying a range of acceptable reciprocal actions and a time period within which such reciprocal actions must take place to ensure continued US restraint;

b. Undertake a program of analysis and research examining (1) the feasibility and utility of joint Soviet-US technical assessments of the arms control implications of new technologies with possible weapons applications and/or (2) the feasibility and utility of discussions or negotiations leading to verifiable arms control agreements on weapons systems which have not been deployed or entered into serial production; and

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c. Present concrete proposals for the strengthening of the security role of the United Nations in the peaceful settlement of international disputes and peacekeeping as an important pre-condition to a more comprehensive reduction of armaments.

Verification was included by the panel under this heading to emphasize its important role in both nuclear and conventional disarmament. The conclusion of an effective arms reduction measure depends upon the creation of adequate monitoring and verification procedures as a minimum condition. Public confidence in and support for arms reduction measures depends upon the conviction that such agreements can be adequately verified. Some participants wanted to encourage the US government to make public, to the maximum extent consistent with real security considerations, information on the state of the art of all categories of verification technology.

At the present time, either national technical means or some combination of national and regional methods provide the basis of most verification systems. Verification procedures are developed as part of each negotiation, with methods tailored to the specific requirements of the agreement. The group concluded that, while verification and monitoring must be geared to particular agreements to insure their acceptance and effectiveness, the central role of verification in nuclear and conventional disarmament requires the US government to explore and undertake initiatives to promote the advancement of verification technology, while keeping in mind the sensitivity of many governments to on-site inspection and other intrusive methods or to the collection of information for verification *per se*.

In support of this goal, the US government should continue to make

known its willingness, expressed in the SSOD, to assist with the development and improvement of verification capability, including the internationalization of aerial reconnaissance, while exploring the internationalization of other means of verification.

NON-NUCLEAR ARMS REDUCTION

The arena of non-nuclear armaments was seen as an extremely urgent area for consideration, since by far the largest section of defense budgets is allocated to non-nuclear systems, the vast majority of states are non-nuclear, non-nuclear armaments are more likely to be used than are nuclear weapons, concerns about the conventional balance
40 inhibit efforts to move away from reliance on nuclear weapons, and continued emphasis on the prestige and status associated with a modern, high technology armed force serves to perpetuate reliance on force as an instrument of foreign policy.

Limitations or reductions in conventional armaments and armed forces, other than in Central Europe, have not been on the negotiating agenda for more than a decade and a half. Therefore, the group recommended:

a. The US government should take an initiative in submitting proposals in this field to stimulate negotiations in an appropriate forum with the Soviet Union and other major powers.

Conventional arms production and transfers were singled out as the area of highest priority. The discussion on this issue reflected the enormous complexity of the problem. Among the thornier aspects noted was the existence of multiple suppliers, and the difficulty of achieving consensus among them. This is further complicated because defense industries comprise a significant sector of the domestic economies of the suppliers. Adequate means of cushioning the economic impact of reduced exports need to be found.

Furthermore, a focus on arms transfers promotes the idea that it is more evil to buy weapons than to produce them. In this and other contexts it was observed that although an indigenous arms industry might provide a spur to industrialization in developing countries, such spillover usually benefits only certain sectors and elite groups. The creation of indigenous arms industries also carries with it very real economic pressures to export, thus having the effect of increasing the number of suppliers. An increased number of suppliers not only would intensify the competition for sales, but more importantly would also greatly increase the difficulty in managing, controlling, and reducing the level of conventional armaments throughout the world.

Despite the difficulty of stopping the arms traffic, there was some sentiment that at least the flow could be regulated and channelled into constructive and less wasteful ways than is currently the case. Here it was noted that the most serious levels of conventional armaments are regionally concentrated (*i.e.*, Middle East, Europe) and are intimately related to regional stability and security. The political aspects of the need to provide and maintain security while simultaneously working towards arms reduction and disarmament were also emphasized.

The purchase of highly sophisticated weapons systems, especially aircraft, by countries that do not currently have the skilled personnel and industrial base necessary for proper deployment and maintenance was also considered. It was suggested that in some instances such purchases might be stabilizing in the sense that the probability of their actually being used to wage war is thereby very low and that control of spare parts and service provides the supplier with some leverage over the recipient.

On the other hand, it was pointed out that in other cases the amount and nature of support services (*e.g.*, 10,000 US technical personnel in Iran) could dangerously involve a supplier in the affairs and conflicts of the recipient. Additionally, high technology systems are more expensive and require greater expenditure of scarce resources. Furthermore, the transfer of technology that is above current capabilities of a recipient and subsequent training in that technology can provide the means by which the recipient could build an indigenous capability for arms productions.

From the above discussions, the group felt that the degree of consensus on both the substance and the priority of a number of specific issues was high enough (although not in all cases unanimous) to warrant the following recommendations:

b. The achievement of significant reductions in its export of conventional weapons, particularly to unstable regions, should be a major goal of American foreign policy. The United States should continue and fully implement its 1977 policy and continue to pursue multilateral cooperation for further reductions by major conventional weapons exporting nations.

c. In addition, in formulating and implementing conventional arms transfer policy, the US government should continue to support discussions or negotiations for stabilizing, limiting and reducing the level of conventional arms **within regional contexts**, including discussions not only on restraints on the types and numbers of weapon systems but also on the expansion of confidence building

measures, such as those outlined in the Final Document of the SSOD.

d. In furtherance of its policy of restraint on the introduction of new or advanced technology weapons, the US government should also place restrictions on the provision of support services supplied as part of major arms transactions, so as to provide a basis for defensive capabilities while attenuating the offensive capability and temptation of these systems. These restrictions could take the form of time limitations on length of training, number of American support personnel, and access to spare parts in excess of normal maintenance requirements.

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e. Additionally, the US government should phase the delivery of armaments over time, to avoid step-level increases in the capability of the recipient and thereby the possibility of stimulating regional arms competition. (Step-level increases are defined as those which increase current inventories by more than 10 percent over a two year period.)

f. Further, the US government, in formulating and implementing conventional arms reduction policy, should consider the effect of a proposed transaction on the creation of an indigenous weapons production capability, either through technology transfer or (if the transaction is denied) through encouraging local production efforts.

Another major item of discussion was chemical warfare. Current US efforts to negotiate a ban on such weapons were noted and there was a strong consensus that these efforts should go forward. In the meantime, it was felt by some participants that the United States should implement defensive measures to deter chemical warfare. The group recommended that:

g. The United States should press for early conclusion of a treaty to ban the production and stockpiling of chemical weapons. Pending the treaty's conclusion, the US government should take prompt action to develop sufficient quantities and types of purely defensive and protective equipment, so as to strengthen its deterrence of any use of such weapons and to create an environment conducive to a ban on production and stockpiling.

A fourth issue that received considerable attention was military budgets. The difficulties of using military budgets for arms control purposes--*inter alia*, secrecy, different accounting and currency systems, fundamental ambiguities, and their sensitivity to domestic political pressures--were raised and discussed. However, it was felt by some that since the defense budget is one of the few overall indicators

of military preoccupation and one that receives a great deal of public attention, it merits concern.

h. Specifically, it was suggested that the United States should pursue its current efforts in support of a UN pilot test of military expenditures reporting. The United States should also explore with the Soviet Union ways of overcoming that nation's current opposition to such technical studies.

In discussing conventional arms reduction in Europe, the group focused on the problems raised for arms limitation and disarmament by weapons not currently under negotiation in either the MBFR talks or in SALT. This led to the recommendation that:

i. The United States should immediately undertake consultations with its NATO allies to examine the possibility of a new forum for regional arms reduction negotiations in Europe, either as a replacement for or supplement to the Mutual and Balanced Force Reductions (MBFR) talks, or as an adjunct to SALT III. The complications and ambiguities inherent in European deployed weapons systems capable of strategic or theater, or nuclear or conventional missions should be confronted directly, and specific arms control measures sought. Unless these problems are promptly and creatively addressed, the unimpeded momentum of weapons modernization throughout Europe could outrun the current opportunities and diplomatic capacity to achieve meaningful non-nuclear disarmament.

The group also discussed so-called "inhumane" or "indiscriminate" weapons and recommended that:

j. The United States should work towards the successful completion of the 1979 United Nations Conference on Prohibitions or Restrictions of Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to Have Indiscriminate Effects.

Other matters of less immediate importance and concern that were raised included various alternative approaches to reducing conventional arms transfers (*i.e.*, force planning), reductions in military manpower, restrictions on the R & D component of budgets, appropriate forums for non-nuclear arms negotiations, and banning weapons of mass destruction. The role of the United States in taking leadership in these and related areas was a continual theme.

DISARMAMENT INSTITUTIONS

One of the concrete results of the SSOD was substantial revision of the

multilateral institutions which deal with arms reduction and limitation. Four organizations were reconstituted or revamped.

1. The UN Disarmament Commission (UNDC) was revived as the multilateral **deliberative** UN body on disarmament. The membership of the UNDC will include all members of the United Nations.

2. The Committee on Disarmament (CD) is a revised and slightly expanded version of the Conference of the Committee on Disarmament. This is to be the primary multilateral negotiating body. The revisions have been designed to make the CD more open to participation by all the nuclear weapons states.

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3. The First Committee of the UN General Assembly will now deal only with questions of disarmament and related questions of international security.

4. The UN Centre for Disarmament is to be strengthened and is to receive increased support for its research and information tasks.

In reference to the role of the New Disarmament Commission, most participants felt that the United States should support proposals for the UNDC to:

a. Consider in what way the 33 items deferred by the SSOD should be further discussed;

b. Give priority to the elaboration of a comprehensive program, especially with respect to conventional armaments; and

c. Provide a forum for all members of the United Nations to discuss drafts prepared by the various negotiating forums.

The group considered the revised UN institutions an opportunity to enhance multilateral efforts for disarmament, especially in view of the participation of France in the CD and China in the Disarmament Commission. One major result of the SSOD is the increased desire of the non-nuclear weapons states to participate in disarmament deliberations. This does not mean a decline in bilateral or regional forums, but recognizes the need for the parties to such negotiations to inform and consult with other nations on a regular basis.

A number of participants stressed the need for the nuclear superpowers to take leadership roles in these forums to avoid the frustrations and bitterness which have clouded other multilateral efforts. The heavy demands these expanded institutions place on the major participants were noted by several members of the group. Overall, the group agreed, it was too early to assess the long-term impact of the

institutional changes but that providing adequate responses to the demands of the non-nuclear weapons states for meaningful participation would be a continuing challenge.

On another level, some participants expressed strong sentiment for creation of an international disarmament organization or a world security agency to be the source for developing a genuine transnational monitoring and inspection capability for future arms reduction agreements. Initially, the agency could serve as a clearinghouse for information on the level of world armaments and military expenditures, reflecting the belief that immediate efforts must be made to lay the framework for alternative international security systems.

Two recommendations for institutional improvement within the US government resulted from the discussions. 45

1. In view of the number of active negotiating forums, the range of issues under negotiation, and the breadth and complexity of arms control and disarmament problems, the US government should:

a. Expand and improve, more generally, the capability of its institutions charged with formulating and implementing disarmament policy, so as to avoid the overload that apparently occurred prior to the SSOD, to permit adequate consideration of new initiatives likely to result from the SSOD and its institutional innovations, and to permit it to participate more effectively in several simultaneous negotiating forums; and

b. Increase the internal and external research budget of the Arms Control and Disarmament Agency (ACDA) to permit it to examine in depth a broader range of issues, including some of the proposals in this report (*e.g.*, confidence-building measures and arms limitation in the research and development phase of the weapons acquisition process), to study other solutions proposed for existing problems (*e.g.*, coping with the economic impact of arms reduction and the "mission approach" to arms limitation), and to explore future directions, problems, and alternative concepts for arms limitation and reduction.

2. The US government should support the institutionalization of a formal role for Non-governmental Organizations (NGOs) in the arms reduction and limitations deliberative process within its own bureaucracy and within the UN framework. Special note was taken of the role of NGOs and research institutions as a source of initiatives. Several participants urged moving forward from recognition of this role in the Final Document of the SSOD to implementation by the UN Secretariat. In this context, the creation of a special

position within ACDA for a liaison with NGOs and the academic community deserves special commendation.

EDUCATION, TRAINING, AND RESEARCH

Of continuing concern throughout the discussions was the need to create a strong national and international constituency in favor of disarmament. Some participants expressed special concern with fostering support for particular agreements, such as the expected SALT II treaty. All the participants shared a belief in the need to give priority to arms reduction and limitation, and that if these efforts were to succeed over time, traditional public conceptions of "security" must be expanded to include arms reduction. A specific section within the group's report, therefore, deals with questions of education and information.

Many proposals for disarmament issues requiring further research appear in the substantive sections. The group felt that, in the aftermath of the SSOD, research was required on several levels.

a. Some longstanding items on the disarmament agenda require careful research efforts, such as the relationship between disarmament and economic growth.

b. There is a continuing need for specific, short-term research to deal with issues currently or about to come under negotiation.

c. Beyond simply responding to the pressing needs of current problems, disarmament research must explore alternative models of a demilitarized world system and political strategies to achieve them, even if such models are not at present politically feasible.

The group concluded that not only must current research capabilities be expanded to meet this challenge, the results must be spread much more widely among the general public. This, it was felt, will require an expanded effort and funding of private, national and international institutions. Special commendation was given to ACDA for creation of the Hubert Humphrey arms control fellowship program.

A number of participants supported specific recommendations:

a. In pursuit of the changes provided for in the Final Document of the SSOD, the United Nations must receive adequate support both for its future research program and for developing links between NGO and international organizations and agencies.

b. The United States should, as a matter of policy, promote with financial assistance the formation of national and international centers for research and public information on disarmament, as well as

a national and international program for the training of social and physical scientists in the theory and practice of arms limitation and reduction.

c. The US government should explore ways to implement programs similar to the UN Secretary-General's proposal that 1/1,000 of national military expenditures be devoted to research and education on disarmament.

The educational organization and constituency-building effort received particular attention. Some participants expressed the hope that intensive educational efforts would lead eventually to the growth of an American disarmament movement, analogous to that for civil rights. As with the research program, the educational effort requires the sustained contribution of leaders and groups from the private sector and from national and international institutions.

It was felt by many participants that while there is much the federal government can and should do to promote public understanding of the security implications of arms limitation and reduction, the private sector (including foundations, corporations, civic groups and research and academic institutions) needs to increase its efforts substantially, particularly with regard to making the issues more comprehensible to the general public. This also reflects the belief of several participants that private sector efforts are needed to foster independent judgments, free from ties to particular governmental or national interests.

Finally, special note was taken of the forthcoming United Nations Educational, Scientific and Cultural Organization (UNESCO) Conference on World Disarmament Education as an appropriate forum for coordinating and evaluating educational efforts on multiple levels.

CONVERSION OF DEFENSE INDUSTRIES

DISCUSSION GROUP REPORT

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CONVERSION OF DEFENSE INDUSTRIES

Problems of defense industry conversion and the adjustment of work forces and communities to changing patterns of defense spending have existed for decades in the United States. Since this was the first discussion of these questions at a Stanley Foundation conference, the group initially reviewed the connection between conversion and wider agenda of issues before the conference. For the group, adjustment and conversion problems were directly related to the arms control and disarmament agenda. The central overriding issue was the planning of a sensible and adequate national and international security policy for the United States, and the halt and ultimate reversal of the arms race.

Since arms spending is the key to the existence of a large defense sector, changes in the level and distribution of such spending have had and will continue to have significant impacts on industry, workers, and communities. It was clear to the group that these impacts exist and will continue to exist, regardless of the level of the defense budget. Solving the problem of the negative impacts of reductions in defense spending on specific communities, firms, and work forces was seen as critical to planning truly efficient national security policy. National security and arms control decisions, the group felt, are too often held hostage to their potential effects on employment and community economic development. If these problems could be solved, national security and arms control decisions could be addressed in their own terms.

IS THERE AN ADJUSTMENT AND CONVERSION PROBLEM?

First, the group addressed itself to the question of whether or not economic adjustment and conversion were critical issues. It was noted that the defense budget is rising, that the defense market grew substantially in Fiscal Year (FY) 1977 and was expected to do so again in FY 1978. Preliminary data on foreign military sales for FY 1978 also suggested a large increase in that market, critical to some large US defense manufacturing firms. Recent discussions of the pending Strategic Arms Limitation Treaty (SALT) suggest it may actually permit increases in US strategic spending in the short term.

Nevertheless, the group felt there was a serious continuing problem of adjustment and conversion. The defense industry has gone through successive waves of increasing and declining spending since World War II: continuing fluctuations are inevitable. This boom and bust

cycle has caused firms, workers and communities continual problems. Many defense firms have recognized the volatility of defense spending and have adopted strategies of diversification—pursued mainly through mergers and acquisition, not through conversion. Patterns of spending can change, even in a rising funding climate. Moreover, group members pointed to a long-term secular decline in defense industry employment. Employment levels nation-wide and in California have never recovered to their Vietnam highs, despite increases in defense spending. This trend, it was felt, reflects shorter production runs and the increasing capital intensity of the defense industry. It was also noted that the high level of military exports, which to date has partially absorbed the excess capacity within the industry, will not last forever—as foreign markets decline.

In addition, the group took note of the continuing problem of local community adjustment problems, even with expanding defense spending, as contracts terminated and procurement shifts occurred (e.g., at Grumman and LTV, and with base closings). Finally, the group took general note of the negative effects of high rates of defense spending on technological development, investment and inflation rates in the US economy. Defense spending, it was felt, is linked to wider economic problems in the US economy and the difficulties of federal policy in adjusting to such problems.

In general, the group felt, defense spending and conversion must be understood in the wider context of shifts of investment in the US economy. The problem of runaway plants is wider than in the defense industry alone, and there are relatively few social constraints over investment decisions. In general, such transitions are not handled well in the US economy. In sum, the group saw a continuing series of adjustment and conversion problems in the United States.

EXECUTIVE AND LEGISLATIVE CONVERSION ACTIVITY

The group reviewed current executive branch programs directed at assisting with firm, work force and community adjustment to defense spending changes and base closings. The record of the Office of Economic Adjustment (OEA) was reviewed. This office, created within the Department of Defense (DOD) in the early 1960s, has functioned for many years as the DOD's primary response to the problems caused by base closings. The office operated, on a low profile, to assist impacted communities with adjustment planning and to seek funding from other federal agencies (Housing and Urban Development (HUD), Commerce, Labor) to assist communities through the transition. Historically, it has had a small staff and low funding levels, has

dealt primarily with base closings, and has been able to act only upon invitation from community officials. Additionally, its function is limited to being on "expeditor," since it does not actually control aid programs. In 1977 and 1978, the federal government reviewed OEA and issued an Executive Order substantially increasing its responsibility for anticipatory planning and for close relations with affected segments of the public. OEA has responded with an increased program of activity, more public relations work and pilot efforts at advance planning with regard to specific plant and base closings.

OEA represents the most substantial federal program directed at the transition problem. However, the group felt it had definite limitations, both in its present form and basic concept. One limitation is the fact that no mandatory requirement exists for pre-notification or advance planning in the event of employment reductions. The OEA also seems to be under considerable stress because of its location in the DOD. There was some concern in the group that OEA tended to rely too greatly on the work of outside consultants in its community-related activity; it was felt that the OEA should involve community representatives more directly in adjustment planning. In addition, the OEA's work was hampered, at least at the start, by natural community tendencies to establish "Save-the-Base" committees or efforts to seek follow-on DOD contracts for defense plants. These efforts often fail, however, indicating the importance of conversion planning.

In addition, the group recognized the importance of community organizations working in close collaboration with local officials to stimulate local activity. The group generally felt that the OEA activities should be located in the Executive Office of the President, rather than the DOD.

It was also noted that the OEA orientation toward base closing persists, since DOD feels it is not responsible for adjustment efforts when a direct DOD decision had not caused a plant closing. The OEA's project with Litton's Ingall's Shipyards in Mississippi also show the limits of the OEA's capabilities. Despite OEA's report recommending labor force conversion into oil exploration work, the recent federal shipyard settlement with Litton and new destroyer contracts eliminated perceptions of an urgent problem in the shipyards.

It was agreed that OEA does not represent an optimal approach to the problem of advance conversion planning. The widespread nature of the military sector requires a far more comprehensive approach, including considerable emphasis on local efforts.

The group also reviewed the record and current activities of the Arms Control and Disarmament Agency (ACDA). The ACDA has a statutory

mandate to monitor the economic impact of arms control and disarmament measures. During the 1960s a great deal of valuable research work was done or supported by the agency in the general conversion and adjustment area. This activity was significantly reduced during the Nixon-Ford presidency, and has recovered little during the current administration. The agency is focusing its internal activity particularly on its negotiating mandates: SALT, Comprehensive Test Ban (CTB), and Mutual Balanced Force Reduction (MBFR). Because of budgetary and personnel constraints, economic or conversion research unrelated to agency negotiating aims is unlikely to be supported in the near future.

In spite of the limitations on ACDA research, some efforts are being made on an inter-agency basis to assess the possible impact of a Comprehensive Test Ban Treaty on the Nevada test site. The group noted, however, that this effort does not deal with the broader question of the Treaty's impact on the major nuclear weapons facilities.

The group noted the critical need for new agency studies and data generation. Existing impact data is dated and new work is required in the following areas: work force dependency on defense spending by area and job skill; job skill transferability studies; regional defense dependency; sub-contracting distribution; secondary employment impacts of defense and alternative spending. The group understood that the agency's devoting primary attention to SALT and other negotiated arms agreements, but urged wider economic research activities once the SALT process was concluded.

The discussion led to a more general review of the inadequacy of federal data on defense spending and its economic impact. The DOD, it was felt, does not adequately track, evaluate or disclose data on defense employment, spending distribution, subcontracting and the like. It was understood that, in general, DOD felt constrained not to report such data, since it would make the Department appear to be focusing on the economic aspects of defense policy, rather than legitimate national security issues. Nevertheless, it was clear to the group that, through the Defense Contract Administration Service, such data was available. In addition, the group urged outside data gathering efforts in this area, especially at the local level.

The group also briefly reviewed other adjustment efforts of a more general nature in the executive branch. The Redwoods Bill, the Trade Adjustment Act, and the Railroad Act all contain some adjustment provisions of possible utility to defense adjustment planning efforts. Despite the inadequacies of the latter two programs, particularly with regard to job creation, they at least set the precedent for federal as-

sumption of responsibility when government action causes economic dislocation. All were thought to be inadequate, however, and not, at least in the case of Trade Adjustment, notably successful in easing work force transition. The group also discussed the adjustment activities of the Economic Development Administration (EDA) in the Department of Commerce. Fifty percent of the Title IX funding of EDA is currently directed at defense adjustment programs, indicating a close working relationship with OEA. Nevertheless, EDA resources are small (the largest program is around $5 million) compared to the community and work force needs, and EDA capabilities for dealing with general dislocation issues are limited. In general, it was noted by some participants, coverage of Federal adjustment programs for workers laid off by spending changes was inadequate. Federal employees received quite limited protection, though not adequate, while proxy federal employees in defense plants received none at all. Contractor employees have special needs in such areas as pension portability, medical benefits, and mortgage assistance.

In general, the group felt that current executive branch adjustment activities were woefully inadequate. The federal government was simply not well structured to deal with economic transitions, stemming from defense spending or other economic changes. Interagency coordinating groups were described as generally inept and inefficient, and too starved for resources to respond ably. Each adjustment program, it was noted, reflected peculiar or "special" interests of the affected constituency, revealing a lack of overall policy and planning.

LEGISLATIVE APPROACHES

There has been a long, unsuccessful history of conversion legislative proposals. Senator George McGovern has introduced such proposals since 1963. The latest conversion bill is the Defense Economic Adjustment Act, introduced by Senators McGovern and Charles Mathias in 1977. Among the bill's key provisions are: adjustment and retraining assistance for defense employees affected by closings or cutbacks, a federal government council for assisting conversion planning and implementation, local alternative use committees at military bases and defense plants, a conversion planning fund to finance these activities, and penalties for contractors who fail to carry out an approved plan.

While the group supported the need for conversion legislation, they recognized the obstacles to Congressional passage. One central problem is that some legislators link such proposals to arms reduction which they oppose on ideological grounds. Moreover, there is widespread sentiment that the solution to local defense cuts should be to

seek to renew contracts or to save the base rather than to convert. Another problem is that the complex nature of the bill requires referral to several legislative committees. Such multiple referral always complicates Congressional consideration. Finally, there is frequent opposition to attempts to provide special relief for particular groups or sectors.

In addition to the McGovern-Mathias Bill, several other approaches are now under consideration in Congress. Congressman Christopher Dodd from Connecticut has expressed a strong interest in conversion and is now considering introduction of a bill to relieve defense dependency and encourage contractor diversification. There is also a possibility that the Defense Production Act can be amended to provide special assistance to contractors and communities for demobilization activities. It was noted with some concern, however, that such an effort would in all probability provide no direct support for affected workers. The group also discussed pending legislation introduced by Congressman Peter Kostmayer of Pennsylvania which would provide for community purchase of abandoned industrial facilities. This bill may be applicable to defense plants and military bases.

In general it was recognized that great care must be taken in presenting conversion legislative pro[illegible] Congress. The group was aware of the image problem around this issue and felt legislative activity should avoid stereotypes. A conversion program would be an effective insurance policy which could protect those dependent upon the DOD spending from the adverse effects of defense dislocations. It would be far superior to the painful economic impact of such unplanned cutbacks as the B-1 bomber cancellation. Conversion can also be argued as an instrument for efficient management. It would permit the DOD to trim their facilities smoothly and efficiently. In general, a conversion approach would reduce the economic pressures which presently impinge upon Congressional military decision-making. National security policies could be considered on their own merit, without reference to local employment affects.

The group recognized that no conversion legislation will be successful unless it is backed by a broad coalition of forces, including a network of trade unions industry and elected officials. The group strongly recommended that the revised McGovern-Mathias bill be introduced in Congress and that major hearings be conducted.

Working for major conversion legislation need not preclude other approaches. The group discussed a number of non-legislative approaches which would also serve as constructive approaches to the problem. It may be possible, for example, to attach prenotification provisions to defense contracts, so that shutdowns or terminations

would have to be announced well in advance. This would provide lead time for alternative use planning. It may also be possible to obtain funding for conversion planning and adjustment assistance benefits in the same way. Additional prenotification provisions and funding might be attached to legislation (perhaps the annual Defense Procurement Bill). This latter approach is now being explored by several trade unions. The group expressed considerable interest in such approaches.

A major question arose during the discussions over whether an economic adjustment program should be focused on the defense sector alone or on the civilian economy as a whole. The trade union preference was for a more holistic or comprehensive approach which could deal with the full range of economic dislocation issues. It was noted that defense adjustment considerations should be included in such a program. The necessary ingredients for any general economic adjustment program would be prenotification of any plant closing or cutback, mandatory public hearings, some mechanism for delaying the cutback until alternative employment is created, and full adjustment assistance to affected workers and communities. The National Employment Priorities Act (HR76), introduced by Michigan Congressman William Ford, points in the right direction. The group came to no decision on whether the general or specific approach should take priority. It was felt that both tracks should be followed: a defense conversion program as well as a more comprehensive approach to economic transitions and adjustments.

THE ROLE OF INDUSTRY

All participants agreed that business participation is very important to the discussion and implementation of conversion. The lack of an industry presence within the group, despite urgent invitations served as a reminder of how difficult it is to attract business participation. Various explanations were offered for this noninvolvement. Many industry representatives do not see conversion as a principal solution to the problem of defense dependency. This is especially true during the present boom period within the defense industry. Where business representatives do see a problem they view diversification as the answer. While this may help the company, however, it provides no help for defense dependent workers and communities. The group felt that diversification is not a solution to the need for conversion. Management is not accountable to the broader community for investment or plant location decisions. These are deemed to be private corporate perogatives, not dependent on public debate or discussion. It was recognized that industry representatives too often have little interest in alternative products, which carry greater financial risk.

Despite these difficulties, it was recognized that some degree of industry support would be critical to conversion political efforts. While most of the major military and aerospace firms are unsympathetic, a number of smaller companies and individual industry representatives endorse the conversion concept. Several firms have made some efforts to convert or diversify, and it would be very important to have them involved. The support of business and labor representatives with practical experience in the conversion process would be an invaluable aid. The group agreed that continuing efforts should be made to attract industry support.

DIRECTED FEDERAL PROCUREMENT

The most comprehensive alternative use planning will be ineffective without a market for alternative products. A major consideration for the practicality of conversion is the need to assure sufficient demand. Careful attention must be devoted to the problem of finding new markets for the alternative products of defense facilities. One approach, according to the group, would be a program of targeted federal procurement.

A recent study discussed by the group has examined the potential market for civilian purchases in four alternative product areas; railroads, solar energy, urban transit and waste treatment. Projections of anticipated spending in these areas indicate the potential for creating 1.6-1.8 million person years of employment through 1990. This could be a major source of alternative demand for converted defense facilities.

The group recognized and agreed with the potential effectiveness of targeted federal purchases, but several problems were noted. For one, such a process could increase the amount of non-competitive federal procurement. It is crucial that alternative activities avoid the severe cost and performance deficiencies which plague current weapons production. Several participants cautioned that a continuation of the gross inefficiencies which characterize military programs would be disastrous to effective, continuing conversion and adjustment efforts. It was agreed by the group that any program of targeted procurement must be accompanied by guarantees of efficiency and accountability.

THE FUTURE OF CONVERSION: LOCAL CONNECTIONS

The group agreed that conversion political efforts have achieved few results. The issue has gained greater recognition of late and some advances have been registered, but a great deal remains to be done.

In particular, it was noted that the existing political constituency for conversion is quite weak. All agreed that much greater effort will be required both at the national and local levels.

A growing amount of local conversion activity is evident, focused on the following: employment and product alternatives (*e.g.*, in solar development), nuclear weapons facilities, the prefiguration of alternative use planning and base closings. Despite this expanded effort, however, the group noted a number of critical problems. Many of these activities lack coordination with national efforts. Local groups also need more systematic information on defense procurement trends, possible forthcoming plant and base closings and local reductions in defense employment.

Several participants asked how local trade union participation could be strengthened. Although several national unions which represent a large number of defense employees support the concept of conversion planning, local activists are often unable to gain labor cooperation. This problem results in part from the feeling among most trade unionists that conversion organizations want political support but can offer nothing in return. Some suggested that one remedy would be working in coalition on such labor priority issues as Labor Law Reform, Full Employment, National Health Insurance, or Energy Policy. Despite beginning cooperation in local communities on these issues, conversion programs seem like pie in the sky, while follow-on military contracts at least can safeguard jobs.

The group recognized that the current national priority placed on military production gives a particular status to defense-related employment. A lack of similar national commitment to other types of activity, *e.g.* mass transit, adds to the difficulties surrounding occupational conversion.

The discussion ended on a sober note, with recognition that conversion will require long, arduous work. Nonetheless, there was hope that a broad political coalition could be built around these issues and that local elected officials, regional planning bodies, other community organizations, and the business community could be attracted to the issue. Adequate and effective conversion planning remains an important factor in public perception of the desirability of progress in arms reduction and disarmament.

REORGANIZATION OF US FOREIGN AID

DISCUSSION GROUP REPORT

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REORGANIZATION OF US FOREIGN AID

INTRODUCTION

The need for a reorganization of US Foreign Aid has been self-evident throughout this decade. Significant initiatives by the Congress have failed to achieve an acceptable or adequate reorganization. This discussion group reviewed these efforts, and a synopsis is presented below as "BACKGROUND." A variety of important elements culled from the discussions are grouped in the "FRAMEWORK OF DISCUSSION" section. Six options for reorganization are described and discussed in the section entitled "REORGANIZATION OF US FOREIGN AID," and, finally, under the title "CONCLUSIONS" the principal areas of agreement are summarized.

BACKGROUND

The present effort to reorganize the US Foreign Aid program reflects the perception that bilateral foreign aid is only one element of the US policies and programs that bear on development and of the changing US role in the North-South dialogue. It also responds to a series of congressional initiatives in the area of international development over the last few years.

New Directions: 1973-77

In 1973 Congress began the process of legislating what has become known as the "New Directions" policy for US development assistance, which represented an effort to move bilateral aid away from a "trickle-down" view of development and toward a more grass-roots, people-oriented approach. In addition to seeking to channel technical assistance and resources directly into meeting development problems, the legislation also called for maximizing the role of US private organizations in development aid.

Congress extended and consolidated the new directions in 1975, making the stress on participation of the poor, basic human needs, and bottom-up development more explicit. By challenging the past programs and policy and formulating an alternative strategy that stressed integrated rural development, creation of jobs, and the participation of the poor in the development process, both the 1973 and the 1975 reforms represented important departures from previous aid bills.

The International Development Cooperation Act of 1978 (H. Humphrey Bill)

The late Senator Hubert Humphrey's last major piece of legislation, this bill represented a special initiative to bring greater coherence and efficiency—and a stronger sense of purpose—to the US development assistance program. Introduced by the Chairman of the Senate Foreign Relations Committee on behalf of all of its members, of both parties, the proposed legislation was characterized as "epitomizing the spirit of a man who devoted considerable time and thought to the issue of how our government could more effectively attack the global problems...which threaten our own national security if left unresolved" and as "representing the most far-reaching reform of our foreign aid programs ever developed by the Congress."

The new legislation was a very complex set of proposals and was not, as its authors freely admitted, a perfect instrument for the purposes they sought. The bill proposed to create a new International Development Cooperation Administration (IDCA) as a separate statutory agency at the Cabinet level, reporting directly to the President. It would consolidate all multilateral and bilateral development programs of the US government into one agency, with the partial exception of PL 480 Food For Peace Programs. It would also have created, within the new agency, a separate International Development Institute to [illegible]

The Foreign Assistance Act of 1978

development related policies and programs and report to Congress by February 1, 1979, as to actions taken and planned.

DEVELOPMENT AND THE STRATEGY FOR PEACE

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The discussion group on foreign aid agreed that it was both appropriate and timely for The Stanley Foundation to have included this subject in this XIXth Conference. It is **appropriate**, because peace is not simply the absence of armed conflict, but is, in addition, the presence of justice in the relations among people. Philosophers in earlier times used to say that peace is the fruit of justice. Pope Paul VI, in a more contemporary vein, said that "Development is a new name for peace."

Consideration at this Conference is **timely**, because the industrialized world as a whole—and the United States in particular—faces a period of systemic change and the necessity of accommodating to growing, new forces that are reshaping the international order. The relations between the United States and those nations we now collectively refer to as the "South," whose the great masses of the world's poor are concentrated, has become an increasingly important and sensitive aspect of our foreign policy. Our relations with many countries of the South are [illegible]

Main Issues Raised

[illegible] the discussion group was that development is important and that in some way it must help people [illegible] human needs in a self-reliant manner. In light of this assumption, further specific issues were raised on whether there is a clear need for increased congruence of policy and program among U.S. agencies and

[redacted] (f) how to balance other political or economic goals with long-term development policy. The group's answers were, on the whole, affirmative to the first five items. With respect to the last, it was recognized that long-term development does not necessarily have priority over all other US foreign economic and political goals; for example, in the allocation of US aid, peace in the Middle East is not a lesser goal than long-term economic development in the developing world.

FRAMEWORK OF DISCUSSION

Purpose/Goals

However broad may be the expectation that reorganization of foreign aid is warranted, insofar as organization flows from purpose it is imperative to discuss and delineate the purpose(s) of development assistance and/or foreign aid prior to planning the reorganization of institutions and programs. This discussion and delineation, moreover, is not a sole US prerogative. [redacted]

—"Equitable" is not the same as equal either among persons or among countries. Yet there is a connection between equity within countries and equity among countries. Divergent views were expressed on whether the perceived conflicts between US emphasis on equity **within** countries (basic human needs) and the developing-country emphasis on equity **among** countries (New International Economic Order) is important in relation to a basic human needs policy.

Basic Human Needs

Though this phrase appeals to those who espouse the equity thesis, it appears too facile and rhetorical to many in the industrialized world; and to developing country leaders it often seems an effort by the North to avoid confronting the problems embodied in the South's "demands" for a New International Economic Order or, more threateningly, as "the imperialism of social priorities," as one Third World leader had expressed it to a participant.

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—Neither the term nor the human condition denoted and connoted by it is exclusively, or even primarily, an American product; it comes from a truly international experience, culminating in the World Employment Conference of 1976.

—In light of its currency in foreign aid circles, a question arises as to its appropriateness as a basis for US foreign policy, foreign aid policy, and/or development-assistance policy.

—The difficulty is not so much that basic human needs is a wrong or a bad strategy, but rather than in its implementation it is subject to two opposing dangers: a) that it may be applied in so narrow and single-minded a fashion as to overlook helpful programs, produce inattention to the development goals of the developing countries themselves, and/or encourage tendencies toward excessive intervention; b) that while there may be a strong rhetorical commitment to the concept, that commitment may not be adequately reflected in US policies and programs.

—One participant noted that "in an increasingly complex world, it is more and more difficult to come up with an acceptable oversimplification"; at the same time, it was agreed that in seeking a new policy basis, we should not throw out the baby with the bath, forgetting the truth that lay behind the previous oversimplification.

Priorities

Acknowledging that conflict situations will always be with us, that all good things don't necessarily go together, and that one always has to make choices, the group explored the question of priorities in the context of these questions: What would you cut if the foreign aid

appropriation were reduced 50 per cent? What would you do if it were eliminated altogether? What would you add if it were increased 50 per cent, as the President has promised to do by 1982?

On the ground that higher priority should be given to long-term, as opposed to short-term strategies, Security Supporting Assistance (SSA) activities were most often singled out for cuts, since development is not their primary purpose; at the same time, it was acknowledged that development considerations may not in every situation be paramount.

While the contingency of total elimination was not discussed extensively, the major response was that greater attention would be paid to other US government economic policies and programs which have an impact on development, such as trade and foreign investment.

The possibility of adding funds provoked a rather lengthy discussion of the hierarchy of objectives, touching on such concepts as self-reliance, equity, growth, trade, investment, *etc.* Throughout this and other discussions, it was emphasized that the objective to be achieved is self-reliance in the sense of **autonomy, not autarky.** This consideration of hierarchy gave rise to a good deal of discussion of specific cases of short-term political or emergency situations, as well as the relation of specific continuing components of US foreign aid (*e.g.*, food aid and arms sales) to them—Indochina being the item on most conferees' minds. Skepticism was therefore expressed as to whether the United States can conscientiously continue to increase foreign aid without a firm, long-term development policy and strategy.

The effect and significance of the "taxpayers' revolt" embodied in the success of "Proposition 13" in California appeared and reappeared throughout this discussion as a kind of counterpoint. While the group was appreciative of the ramifications of this very real phenomenon, the general view was that its effect on foreign assistance funding levels would be minimal. On the other hand, it was recognized that the overall condition of the national economy, the rate of inflation, the status of the federal debt, and the level of unemployment would inevitably affect foreign assistance appropriations, because these factors control the amounts of money available in the budget.

Present Levels and Organization of Foreign Aid

The general thrust of this extensive and informative discussion was that neither the Executive nor the Legislative Branch is organized to deal coherently with the foreign-aid issue, much less North-South economic relations.

The conferees looked at financial documents and achieved a comprehensive, if not detailed overview of this complex set of budgetary items. It was understood and agreed that development assistance accounts for about 0.22 per cent of our GNP and about 1 per cent of the federal budget; in round numbers the total comes to about $5 billion for the current calendar year. (For purposes of comparison, it might be noted that the US defense budget for the same period is about $125 billion, roughly 25 times as much.)

The discussion of organizational arrangements resulted in a genuine appreciation of the multiplicity of agencies, departments, and offices involved in the Executive Branch (especially the substantive role of the Office of Management and Budget), the complexity of policy and operational structures, the urgency to consider seriously some new ways to coordinate and consolidate in both policy and operations sectors, and the constraints in terms of both budget and personnel systems. The international economic programs of other US government departments and the overseas operations of the domestic agencies with international responsibilities and operations (*e.g.*, Departments of Agriculture, Energy, and Defense, National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration, etc.) were included in the review in order to provide as complete an overview as possible of US government organization for such international programs. The jurisdiction and roles of various congressional committees in both houses—especially the growing power of the Budget Committees—came in for special attention and discussion.

REORGANIZATION OF US FOREIGN AID

Current Proposals

In the context of a review of the history, motivation, and components of current reorganization and coordination proposals (and some actions), the group looked at the prospects represented by the following six options:

- —Option 1: the present system (an enhanced Development Coordination Committee and a continuing Agency for International Development) which keeps bureaucratic power essentially where it is.
- —Option 2: Humphrey Bill (upgrading the functions, improving coordination, combining authority for bilateral, multilateral, Peace Corps, and international financial institutions in a statutory, independent, Cabinet-level agency)—a fundamental shift in bureaucratic power.
- —Option 3: Humphrey Bill minus authority over US participation in the international financial institutions.

—Option 4: Director of International Development, equivalent to the present Director of Central Intelligence or the former Director of Mutual Security, with two functions: a) to administer the bilateral development assistance program, and b) to coordinate all development-related programs of other US government agencies and departments, including budget and policy review and participation.
—Option 5: a Special Assistant to the President for Foreign Economic Policy, to coordinate all foreign economic programs and policies from a post in the Executive Office of the President.
—Option 6: a new cabinet-level Foreign Economic Agency, to consolidate all foreign economic policy in a single office.

Discussion

The discussion focused mainly on options two and four. In this context the Humphrey Bill was discussed at considerable length in relation to its four main purposes: (a) to get rid of nearly three score "barnacles" that have attached themselves to foreign aid over the years (half were removed in the current legislation); (b) to raise the level of priority accorded to development in foreign policy; (c) to increase the coherence of development policy; (d) to improve the effectiveness of development assistance program administration. Since the first is progressing about as fast as is politically feasible and the last would have involved detailed procedural and project discussion, the group focused on (b) and (c), both of which would be affected by various organization options.

In this connection it was noted that the term "coordination" is used here in two senses, which are not always kept as distinct as they should be: (a) coordinated **attention** to the development aspects of all US policies and programs; (b) the coordination of development assistance **policies and programs** in order to improve their coherence. The distinction is particularly necessary as we face what one participant referred to as major centrifugal forces for dispersion or decentralization. There is the further dilemma of centralization of policy versus decentralization of operations, together with the need for increased technical (as opposed to policy) expertise in decision-making. A further complicating factor is how to resolve conflicts resulting from the interplay of foreign-policy and development considerations with domestic priorities.

A matter of particular attention was the proposed Foundation for International Technological Cooperation (FITC), which is not a part of the Humphrey Bill, but was announced by the President in his address to the Venezuelan Legislature in March 1978. Although its structure and purposes are not yet clearly delineated, some participants ex-

pressed the hope that it would be an active and aggressive promoter of an autonomous technological capability in the less developed countries. It could then become an important instrument for achieving the equity goals that are central to the Humphrey Bill. In order to be effective in that direction, it would need political protection from setsitive toes on which it may tread. Such considerations might well determine its bureaucratic location.

Dimensions of the Problem

Many members of the group shared the view expressed by one of the participants that the problem, **at this juncture**, seemed almost insoluble because of administration and congressional jurisdictional problems (among other) and that the effort to move forward logically will very frustrating. Other participants thought this unduly pessimistic. In particular, the Chairman [illegible] that the US government believes that development is important **but** it is not now organized, either in the Executive or the Legislative Branch, to handle development matters. **Therefore** it must reorganize in such a way that the importance of development is reflected in policy and structure.

The prevailing sentiment of the discussion group was clearly with the second formulation. The group did not share the reservations to such reorganization voiced by one participant, who cited the small amount of money involved, the difficulty of weaning a new agency away from existing agencies, the loss of much talent available in existing agencies to handle very complex and sensitive foreign aid problems, the relation of foreign aid to other factors within the purview of existing agencies (e.g., domestic agriculture and the balance of payments), and the increased visibility and therefore vulnerability of a consolidated foreign aid budget in times of tight funds. In any case, the participant thought, if consolidation of overseas development activities is considered necessary, it should take place under the State Department, which is responsible for overseas activities.

There was a consensus that the present system cries out for improvement, but an acknowledgement that clear lines for such reorganization were lacking. There was also a strong sentiment that, whatever the ultimate outcome, the spirit of the Humphrey Bill should not be lost in the consideration and testing of specific, pragmatic strategies. It was agreed that the President will have to demonstrate to the Congress that he has a viable means of effectively managing development programs before he can get the resources that will be needed for an improved development assistance program.

CONCLUSIONS

It was agreed that development is important—and that its importance is greater than has been hitherto acknowledged through its importance compared to other matters was not discussed.

It was agreed that [illegible] and that [illegible]

It was agreed that [illegible] and that [illegible]

It was agreed that [illegible] and that [illegible]

It was agreed that among the reasons for the United States to help poor countries develop is that to do so is in our economic, political, and moral interest.

It was agreed that whatever we do, the United States will be affected by the changes taking place in the international economic order, and that accommodation to these changes is both necessary and wise.

It was agreed that one of the instruments by which the United States affects development in the South (but not the only or even the most crucial one) is foreign aid; we have a clear idea of what is included in that term, as well as how marginal its contribution is in most circumstances, e.g., 97 per cent of Indian development is done with Indian resources.

It was agreed that organization logically flows from purpose and reflects priority—and that the present organizational arrangements are inconsistent with both the purpose and the importance of foreign aid.

In light of these considerations **it was agreed** (though not by all participants) that option two (Humphrey Bill) and option four (Director of International Development) seemed the most promising approaches to pursue, bearing in mind that any such changes would raise questions about existing agency responsibility which are in considerable contention and remain unresolved, and that any effort to improve coordination also raises several subsidiary questions which will need to be addressed, such as a) whether improved central coordination needs to be accompanied by improved coordination in the field, b) what new kinds of coordination problems may be raised by the shifting of organizational responsibility, c) what bilateral aid reorganization may be required to fit it in effectively with a coordinated development mechanism, and d) what might be the requirements in personnel and other administrative categories.

Finally, **it was agreed** that while the group had engaged in a discussion of these options with a view to identifying the most promising approaches to pursue, it was not appropriate for the group to try to take a decision on any of the options. Rather, it was agreed that the group should report to the President that the issues had been explored in depth and that the group was prepared to help those who had the responsibility for making decisions in this area to do so in any way that would be helpful. It was agreed that the group should report that the issues were complex and that the decisions would be difficult, but that the group was prepared to help those who had the responsibility for making decisions in this area to do so in any way that would be helpful. It was agreed that the group should report that the issues were complex and that the decisions would be difficult, but that the group was prepared to help those who had the responsibility for making decisions in this area to do so in any way that would be helpful.

That, it was acknowledged, is the spirit of the Humphrey Bill. Overriding whatever disagreements the participants had on that bill and its proposals was the consensus that the spirit of humanity and of hope which it embodies must be preserved. As to the reorganizational decisions that require the act of political will, **it was agreed** that in view of the range of subjects encompassed and the bureaucratic problems entailed, only the President can make them. It was the unanimous hope of the group that he would do so — and quickly.

ENERGY AND DEVELOPING COUNTRIES

DISCUSSION GROUP REPORT

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ENERGY AND DEVELOPING COUNTRIES

Before one attempts to discuss the energy problem in developing countries (LDCs) it is important to make three prefacing remarks.

First, when we speak of energy problems in this context we are referring both to commercial energy (oil, coal, electricity) used in modern sectors of LDCs and also traditional energy (firewood, charcoal, wastes, and animal draft power) used in most LDC rural areas and among the urban poor. Both are important. Commercial energy, for example, accounts for an estimated 70 percent of energy consumption in Brazil, while traditional fuels make up 68 percent of Bangladesh demand and even higher percentages in some other LDCs.

Second, LDCs are not homogeneous with regard to energy resources and uses and most generalizations about them are likely to be misleading.

Third, an important barrier to analyzing the problem and alternatives is the lack of a systematic and comprehensive assessment of the energy. The reader should recognize this handicap when assessing conclusions in this report.

THE PROBLEM

For the modern sectors of the developing nations, oil is the primary fuel. Since this sector is growing rapidly, oil consumption is rising sharply also. In addition, among the 2-4 billion people that currently depend upon traditional fuel in these nations, there appears to be a shift away from such fuels and toward the use of petroleum products. Oil use is increasing steadily in both sectors.

The expansion of commercial energy use in the modern sector and the transition toward commercial energy use in the traditional sector result from several factors:

a. The effect of the modernization process (the change from traditional technologies to modern sector based technologies in areas such as production, transportation and health) that is occurring **among the urban higher income groups** is to increase the demand for modern industry and transport, higher agriculture production, and new housing. Fulfilling these requirements tends to require increased commercial energy.

is stimulating the demand for a "better life." Through education, mobility and improved communication these people learn of the comforts and life-enriching innovations of the modernization process and seek to achieve what they observe to be desirable. Commercial energy is needed in this case both to fuel new ways of doing old things less onerously (*e.g.*, tractors in lieu of labor) and to operate new innovations (*e.g.*, radios).

c. The disappearance of traditional fuels caused by population increases and increased urban energy needs also leads to pressure for commercial fuels. The environmental degradation and the reduction in rural quality of life caused by diminishing supplies of wood and other noncommercial fuels is of central importance. Certainly an important part of the LDC energy problem involves deforestation, loss of rich agricultural topsoil and hardships for those whose way of life depends on fuel wood.

These, then, are the pressures causing an expanded use of modern energy, but why is oil almost always chosen as the source of this energy? One sees five explanations:

1. Oil was for a long time cheap and even decreasing in price. It has been the number one choice in the past for all nations.
2. An entire oil related infrastructure has developed in most LDCs. No competing form of modern energy has a similarly well developed system to support its use.
3. The most convenient technologies are based on oil. This is especially true in the transportation sector that may account for 40-60 per cent of the commercial energy use in many LDCs. To a lesser extent, this is also true for lighting, cooking, and irrigation.
4. Some multinational corporations, international organizations and developed nations have pursued policies in LDCs that skewed development toward petroleum use.
5. Simple inertia is difficult to overcome. Choosing an alternative other than oil means shifting from familiar options to something unknown.

It is clear that the expansion of oil consumption in both the modern and traditional sectors is caused by powerful economic and institutional factors not easily countered. One of the central energy problems for LDCs is that this petroleum expansion and the accompanying development of an oil based infrastructure comes as most experts predict the peaking of world oil production within two decades.

Even if the supply of oil and other conventional fuels were to permit,

however, the financial burden of following this path would be exhorbitant for most LDC's.

The next 20-30 years will find LDCs faced with a dilemma similar to that of developed nations with regard to shifting their existing modern economies away from substantial dependence on petroleum. Even more so than LDCs, however, the oil needs of the rapidly expanding modern sector are rising. But LDCs must also provide energy for those who are making the **transition** from noncommercial to commercial energy either because of modernization or because traditional energy sources are declining. The magnitude of the crisis is overwhelming when one realizes that most LDCs face these problems with very limited financial, technical and institutional resources.

ENERGY DEMAND

Future energy demand projections are usually taken as given in policy discussions. They are the targets which determine the amount of supplies that must be secured. Seldom is much attention given to reducing demand through improving the efficiency of energy use. This is especially true in LDCs where the argument is made that energy conservation is of minor importance because of low *per capita* energy consumption. LDCs should not fall into this trap.

Between 80 and 85 per cent of the housing stock in a typical LDC city in the year 2000, will be built after 1978. Similarly, approximately 70 per cent of the machinery and other capital stock of industry existing in a typical LDC in the year 2000 will be installed after 1978. Conservation investments represent an incredibly rich source of energy if, for example, new investments in efficient building featured insulation and passive solar designs and if industrial processes emphasized energy conserving rather than energy intensive methods. Even the existing stock of buildings and industrial processes should be considered candidates for fuel conservation since many could be economically retrofitted. In addition, urban expansion provides an opportunity to rationalize urban design in order to reduce the need for scarce liquid transportation fuels, although we recognized the difficulty that uncontrolled migration presents.

In the rural sectors, a number of scholars have documented the inefficiency of energy use, especially in cooking. It requires 6-7 times more energy to cook a meal on an open fire than on a typical modern gas range. The introduction of simple stoves could improve efficiency two or three times, thus in effect doubling the supply of wood. Because of the major energy savings possible in both modern and traditional sectors between now and the year 2000, conservation is potentially a

larger contributor to the energy needs of many LDCs than most, if not all, of the nonconventional energy supply alternatives.

ENERGY SUPPLY

Several general points can be made about major supply alternatives:

—Their potential applicability will vary greatly from country to country depending on indigenous resources, topography and climate.

—The energy future is so bleak in most LDCs that any promising alternative should be explored for potential local application in spite of problems that may generally be associated with such an alternative.

—In many of the alternatives, the technology for producing and using the energy was developed in the western nations under very different conditions than exist in LDCs. For example, the extracting technology for coal is geared to high labor costs and large high grade coal deposits. On the use side, large central plants have been designed to convert the resource to useful energy. None of these technologies may be particularly appropriate for developing countries. New ways to produce and consume coal are needed if LDCs are to exploit this and similar resources to their fullest economic extent.

—Environmental considerations arise in the analysis of most supply alternatives. The carbon dixoide (CO_2) problem with coal; waste and safety problems with nuclear; deforestation problems with firewood; and a host of ecological problems with major hydro are all important. However, the energy problems of LDCs are such that environmental concerns are generally treated as subservient to the need to increase supplies, except where productivity is affected (*e.g.*, erosion).

With respect to individual supply alternatives, coal is considered a major potential source of energy for many LDCs even though most of the **known** reserves are in two or three countries. The use of coal in some LDCs remains limited by demand, not supply.

Natural gas is considered of moderate importance. It is geographically located among LDCs in roughly the same pattern as oil. To be exploited gas requires capital intensive pipeline distribution systems—a major obstacle to many LDCs.

Nuclear has the obvious problems of relatively high foreign exchange and capital requirements, safety risks, environmental concerns, resource supply uncertainty, and highly skilled personnel needs. The overriding problem, however, appears to be the size of the electric grid (market) that exists or will exist by the year 2000. Even if 400

megawatt nuclear plants can be manufactured (there is considerable uncertainty that this can be done economically) few LDCs will have interconnected electric power grids large enough to even seriously consider the nuclear option. It is not considered a significant alternative for more than 10-20 LDCs during the next 20-30 years.

Major hydroelectric facilities are considered an important source. Developing countries have within their borders 70 per cent of the world's major hydro potential, but only 20 per cent of the world's installed capacity. Only a small fraction of the potential in LDCs has been exploited. Unfortunately, many potential hydro sites are far from markets or in places that require cumbersome multinational cooperation. Major hydro projects in the development process are usually justified
76 in part by their contribution to needs such as flood control and irrigation as well as energy. For some projects energy production is a by-product, used as a mechanism to help finance the project.

Renewable energy sources are generally considered to have excellent potential for supplying energy in the future, especially on a decentralized basis in rural areas. In almost every case, however, applicable technical, economic or cultural information essential to the widespread application of these renewable technologies is too limited to make solid assessments.

In the near-term, biogas generation and mini-hydro appear the most promising of the major options since their present costs seem competitive in fairly wide applications. Photovoltaic cells hold great promise if cost reductions continue on their present course. Wind is so site specific that its widespread applicability is difficult to assess at present. Direct solar thermal technologies will probably have significant application where low grade heat is needed such as agricultural drying processes and water heating.

With the possible exception of biogas and firewood, none of the other major renewables technologies (photovoltaic, wind, mini-hydros, and thermal solar) can economically meet rural energy needs for cooking at the present time. Biogas processes can help replace energy based fertilizers and possibly supply some cooking fuel (cooking currently accounts for 30-50 per cent of rural energy budgets). None of these alternatives may serve the needs of transportation or motive power for plowing.

ENERGY PROGRAM OBJECTIVES

A developing nation facing the problems just outlined may establish for itself one or more of the following objectives against which prospec-

b. The modernization process acting on the **rural and urban poor**

tive solutions to the problem can be measured. Obviously, countries would place different relative emphasis on each of the objectives. Alternative objectives include:

—Providing adequate energy supplies to meet the basic needs of all the nation's people;
—Targeting energy supplies to reduce the rate of urbanization and/or emigration;
—Saving foreign exchange by reducing oil imports;
—Providing energy for industrial, commercial, and agricultural development;
—Increasing national independence, reduce vulnerability and improve national security;
—Protecting the environment and maintain the productivity of agricultural lands;
—Applying energy resources to maximize employment.

ACTIONS

The panel identified a series of approaches or paths that developed nations, international organizations and LDCs might consider as they struggle together to deal with the energy dilemma. Five areas for action were discussed:

1. Energy Policy Development

Great emphasis was placed on the need to create tools, build institutions and develop personnel within each LDC to deal with its particular energy situation. The policy making role will require extensive data collection and analysis of the energy demand and supply options facing the country. In each LDC, it is important that the energy policy system be integrated with the policy making and operating units that are responsible for that nation's economy and overall development. This is essential because energy problems, their potential solutions, and the criteria for evaluating those solutions are closely interwoven with other aspects of development.

International organizations and developed nations should support policy development by (a) financing the training of energy policy makers; (b) supporting major data collection and analysis efforts requested by LDCs; (c) supporting exchanges of policy information and expertise among LDCs; (d) developing assessment methodologies that LDC policy makers can use to approach this task; and (e) supporting research and technical assistance on the relationship between energy and development strategies.

2. Development and Demonstration of New Demand and Supply Alternatives

As we noted earlier many questions remain unanswered regarding potential for more efficient use of present and future energy and the viability of new approaches to energy supply. How much can be saved through the cost effective retrofit of commercial buildings, the revamping of manufacturing processes or the introduction of more efficient stoves? What specific actions and technologies are cost effective in achieving the efficiency gains? Which of the renewable sources or packages of renewables are determined by villagers to be most suitable for villages? What barriers have to be overcome to increase the
78 distribution of such technologies? A host of questions such as these need to be answered through large scale experimental and demonstration activities carried out by developing countries and supported financially and with technical assistance by developed nations and international organizations.

Coincidental with this recommendation, several members of the group called for the creation of international mechanisms on renewable energy. The mechanisms would seek both representation from and considerable interaction with private industry, developing and developed countries, the academic community and international organizations. The mechanisms would also (a) seek to coordinate research and demonstration activities of renewables, supply and efficient use, (b) establish common evaluation procedures for such tests and demonstrations, (c) collect and disseminate information about new activities in the renewables area and results of ongoing work, (d) provide assistance to all countries on renewable energy supply and efficient uses, and (e) serve as an advocate for action and an information exchange with respect to renewable energy supply and conservation. Some preferred a new institution to perform these functions and others would use existing organizations.

The United Nations is in the process of planning its 1981 Conference on Renewable Energy Resources. It was suggested that preparations for that conference be used to design and develop a consensus on a new mechanism for focusing on renewables.

3. Financing and Implementation

The energy capital financing burden facing the LDCs is immense. One study estimated $10 to $14 billion by 1980 was needed to finance only oil exploration in oil importing LDCs. The financing needs for efficiency improvements and eventually for renewable energy supply are likely to be great also.

No new institutions were recommended by the group to deal with these financing issues. Most of the funds will need to come from the private sector. To make these funds flow easier and with more security the International Bank for Reconstruction and Development (World Bank) is urged to open a "third window" to handle renewable energy investments not now in the World Bank's portfolio. The World Bank's recent decisions to participate selectively in financing oil and gas exploration and development are applauded and the group encourages the Bank to support such activity much more extensively.

Financing, of course, is only one of the implementation barriers that must be overcome once the feasibility of an energy alternative has been demonstrated. Penetrating the rural area with innovations through public and private efforts is a process to which all concerned with the energy problem should give attention. Development of extension services, the use of national and international volunteers and the role of the individual entrepreneur and industry are all potentially important.

4. Raising Awareness

The lack of understanding in the developed world about the energy problems of LDCs is widespread. The absence of correct perceptions about the problems can lead to inappropriate policy responses, inaction or even indifference.

An equally disturbing level of consciousness about the problem and possible solutions exists in some LDCs. Even in areas where pockets of understanding do exist among the scientific/academic community, these views do not often penetrate the political leadership or top government managers and policy makers.

In both these cases major efforts need to be undertaken first to educate and then to instill a sense of urgency for action that is essential if the problems are to be addressed and overcome.

5. Analysis of and Coping with Impacts of the Energy Transition

The potential social, political, and environmental impacts of the kind of energy future for LDCs we have portrayed in this report are considerable.

Extensive study of these impacts is necessary. Issues such as the CO_2 and thermal pollution problems emanating from increased burning of fossil fuel should continue to be researched by the United Nations Environment Programme and others. The social and environmental

aspects of the firewood problem require much more attention. In addition, study is needed of the potential for multinational hydro projects and the special problems associated with nuclear power.

CONCLUSION

The energy future of LDCs radiates problems of crisis proportions. These problems appear even more complex and difficult to deal with than those of developed nations. The march away from traditional fuels and toward higher petroleum dependence portends great difficulties. There are, however, some potential options for reducing the sting of the dilemma in both the modern and traditional sectors. Centralized alternatives, although promising, will not be adequate to meet the needs of LDCs and in particular are not likely to penetrate the countryside. Hence, the abilities of LDCs to resolve this part of the dilemma will depend to a significant degree on the outcome of the renewable option. Whether this and other options will be exploited to their optimum level depends on the ability of LDCs, international organizations and developed countries to form an unprecedented partnership in the area of research, financing and sharing experiences in order that human welfare may be improved.

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